Nova Scotia

Department of
Mines and Energy

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OFR 89-04

OPEN FILE REPORT ON SELECTED MINERAL OCCURRENCES OF SOUTHERN CAPE BRETON ISLAND, NOVA SCOTIA[1]

NTS 11F/10, 11F/15, 11F/16, 11K/01, 11K/02

NOVA SCOTIA DEPARTMENT OF MINES AND ENERGY

By: K. E. Northcote, G. DeMont and A. Armitage

MARCH 10, 1989

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A number of exploration geologists and prospectors provided excellent information and showed me a number of significant occurrences. In particular I wish to acknowledge the assistance of Alex Thomson for time spent with me on the Campbell Mountain occurrence and for use of company information. I also greatly appreciate the assistance of the many residents who lead me to obscure occurrences and gave permission to trespass on their property.

I thank all my colleagues at NSDME but particularly J. D. Keppie, A. Chatterjee, J.M. Patterson, G. O'Reilly, and D. Kontak for their time in the field and helpful discussion. A very special thank you to G. DeMont who coordinated his library research with my needs in the field, for bringing to my attention a number of significant occurrences and for accompanying me in the field to examine them. Finally, a sincere thank you to my field partner, Allan Armitage, for an excellent 1988 field season.

OBAN COPPER F10-10

OCCURRENCE: OBAN COPPER F10-10 (Replaces F10-10, 17, 18, 19, 20).

LOCATION: 5066550 N 663150 E NTS 11F/10C

Centred on the most significant occurrence, on East Brook.

ACCESS:

Drive 8.5 km north-northwest of St. Peters to Oban. From the road intersection 0.5 km southwest of Oban, drive 2.35 km east to East Brook. The main copper occurrence begins at the top of a waterfall 50 m below the road and extends for 160 m downstream. A second occurrence is a 12 m wide malachite zone in Middle Brook, 500 m west of the main occurrence. Small zones of copper mineralization, accessible by vehicle, also occur in the bulldozed area around the radio towers, 600 m northwest of the East Brook occurrence.

Note: The East Brook occurrence, where the significant mineralization is located, is posted by the landowner and permission is required to trespass.

REFERENCES:

Hollister, V. F., Potter, R. R. and Barker, A. L., 1974. Porphyry - type deposits of the Appalachian Orogen. Economic Geology, v. 69, p. 618-630.

Keppie, J. D. and Smith, P. K., 1978. Age of igneous rocks along the Lennox Passage-St Peter's lineament, southern Cape Breton Island. NSDME Paper 78-2, p. 10.

NSDME AR 11F/10C 27-0-21 (02) Copper. John A. Leslie, Assessment report on the St Peter's claim group, Richmond County, Nova Scotia, August 20, 1968.

NSDME AR 11F/10C 27-0-21 (03) Copper. John A. Leslie, Assessment report on the St. Peter's claim group, Richmond County, Nova Scotia, August 20, 1969.

NSDME AR 11/F10C 27-0-21 (04) Copper. John A. Leslie, Assessment report on the St. Peter's claim group, Richmond County, Nova Scotia, August 31, 1970.

NSDME AR 11F/10C 07-0-64 (01) Copper. P. Hibbens, Duval International Corp. Geological, geophysical and geochemical report on contingent Mining Licences 3880-4418, Richmond County, Cape Breton, Nova Scotia, May 15, 1981.

NSDME AR 11F/10C 07-0-64 (02) Copper. P. Hibbens, Duval International Corp. Geological, geophysical and geochemical surveys, License 3880, Richmond County, Cape Breton, Nova Scotia, November 23, 1981.

Sexton, A. J., 1986. Geology of the Sporting Mountain area, southeastern Cape Breton Island, Nova Scotia. GSC OFR 1236, 136 p.

GEOLOGIC ENVIRONMENT:

The Sporting Mountain - Oban area is underlain by late Precambrian Fourchu Group volcanics intruded by the Sporting Mountain Pluton. These units are unconformably overlain by and in fault contact with Windsor Group and upper Carboniferous (undifferentiated) sediments (Keppie and Smith, 1978).

The Fourchu Group consists of andesitic and felsic volcanic lavas and pyroclastic units. The Sporting Mountain Pluton is composite, ranging from diorite to monzogranite in composition. It has been suggested by Keppie and Smith (1978) that both units are late Precambrian in age and may, therefore, be comagmatic

and near-coeval.

Sexton's geologic and lithochemical study of the Sporting Mountain plutonic - volcanic complex is summarized as follows (Sexton, 1986): The Fourchu Group comprises interbedded mafic, 40%, and felsic to intermediate flows and pyroclastic rocks. The volcanic rocks along the southeastern margin of the Sporting Mountain Pluton are mainly felsic tuff with minor mafic tuff. The Sporting Mountain Pluton has a fairly narrow range of composition from medium grained granodiorite to monzogranite, which is locally porphyritic. A small amount of tonalite occurs at the northeast end of the Sporting Mountain area. In the Oban area the rocks are finer grained and more mafic than usual, appearing chloritic, possibly as a result of shearing. Dykes of varied composition and texture, probably genetically related to Sporting Mountain Pluton, cut both the pluton and volcanics. The presence of vesicles in some of the dykes indicates high level emplacement.

TECTONIC ENVIRONMENT:

Lithochemistry indicates that the Sporting Mountain volcanic and plutonic rocks are calc-alkaline and were generated in an island arc environment (Sexton, 1986, p. 70).

GEOLOGY OF THE OBAN OCCURRENCES:

Mineral occurrences:

A number of mineral occurrences have been reported in the Oban area but the most significant mineralization to date is at East Brook on the south margin of the Sporting Mountain Pluton. Copper mineralization in northeasterly trending shear zones of varied intensity, crossing structure for a width of 150 m, and, with disruptions by faulting, were traced along strike by geophysical surveys and diamond-drilling for a length of approximately 900 m (Leslie, NSDME AR 1969).

A malachite zone in Middle Brook, 400 m west of the East Brook occurrence, extends across structure for 12 m and outcrops along strike 120 m farther west. This zone is believed to be a fault-disrupted west extension of the East Brook zone (Leslie, NSDME AR 1969).

Other mineralization, barely of mineral occurrence status, can be seen in diorite in the bulldozed area around the radio towers. This mineralization, which differs from the main zone, is in veins (fracture fillings), < 1 to 2 cm wide, filled with granular pyrite and very minor chalcopyrite. These rocks are massive with epidotized patches several metres across but in general much less intensely altered than the main zone.

Lithology:

Shearing masks the original lithology and textures but petrographic study of polished thin sections from samples collected in East Brook suggests that the lithology here is predominantly plutonic. Where less sheared and altered, the rock textures are mainly granitic but show variations in texture and grain size suggesting some intermixing with volcanic or dyke rocks. Original textures are almost completely obliterated in zones of most intense shearing and alteration. But even these zones commonly show vestiges of granitic texture as small lensoids in the sheared, hydrothermally altered matrix.

The mineralogy of the rocks sampled is fairly uniform, consisting of plagioclase, quartz, and chloritic mafic minerals. Sphene is a common accessory mineral. A lensoidal shape of strained quartz grains is common and may be primary, the result of deformation, or both.

Alteration:

The rocks show varied grades of propylitic alteration by sericite, chlorite,

epidote, carbonate and widespread pyrite. Sericite, carbonate and epidote replace feldspar; chlorite repaces mafics. Superimposed on this are zones of intense hydrothermal alteration following northeast-trending shear zones. These zones of intense alteration consist largely of sericite and quartz but also contain carbonate and chlorite which all form discontinuous networks throughout the cataclastic rock fabric. Introduced quartz, to 70%, forms veins and segregations. Copper mineralization, with 5 to 15% pyrite, is most abundant in these sheared, more intensely altered zones.

MINERAL POTENTIAL:

Sexton, 1986, records only one granodiorite sample that shows high Cu content (110 ppm). Other samples give an average value of 14 ppm Cu and 57 ppm Zn. From these data he concludes that the pluton was not the source of copper mineralization in the vicinity of Oban. In view of this conclusion it should be noted that the composite Guichon Creek Batholith in south central B.C., with proven (and mined) copper reserves of > 1 000 000 000 (> 1 billion) tons of > 0.4% Cu, has copper values in its various differentiated phases ranging from > 100 ppm Cu in the outer hybrid phase through 40 and 20 ppm in successive intermediate phases to < 5 ppm in the most differentiated inner phase. Unless it can be shown that the magma of a differentiated pluton was initially copper deficient, low Cu values do not necessarily preclude the pluton as a source of metal.

PREVIOUS WORK:

Work on the Oban occurrence, in the period 1967 to 1970, was done under the direction of John A. Leslie, P.Eng., and is reported in NSDME AR 11F/10C 27-0-21 (02 to 04). This work is summarized as follows:

1967 Reconnaissance geochemical stream sediment survey
East Brook 930 ppm Cu
28 ppm Pb
113 ppm Zn
15 ppm Mo
Reconnaissance geochemical soil sampling
Chip sampling main occurrence East Brook.
Prospecting

1968 Reconnaissance and detailed geologic mapping
Detailed geochemical stream sediment survey, Mo, Cu, Pb, Zn.
Detailed geochemical soil survey, Zn, Pb, Cu, Mn.
Geophysical surveys (a) magnetometer survey (b) IP survey
Diamond-drilling

1969 Detailed (a) soil sampling
(b) IP surveys
(c) vertical loop electromagnetic survey
(d) VLF-EM
(e) diamond-drilling
Reconnaissance
(a) VLF-EM
(b) soil sampling

In the period 1978 to 1981 work on the Oban property was carried out by Duval International Corp. and was reported by Paul Hibbens in NSDME ARs 11F/10C 07-0-64 (01 to 02). The work consisted of:
(a) Soil sampling
(b) Geological mapping and chip sampling
(c) Proton magnetometer survey
(d) Electromagnetic survey

(e) Radiometric survey

1988 FIELD CHECK, NSDME (K. E. Northcote and A. Armitage)

A topofil and compass sample location map (Figure 3) was made of the copper mineralized section of East Brook. A total of 12 samples, 88-OB-5601 to 12, were collected for petrographic and chemical analyses (Tables 1 and 2). Subsequently a second visit (Northcote and DeMont) was made to examine and sample outcrops along Oban road and in the cleared area of the radio towers.

1988 analyses:

Samples 88-OB-6501 to 12 and 88-OB-9101 to 11 were analyzed for 36 elements by Gold + 33 Direct Irradiation/INAA and Atomic Absorption methods. Chip samples were collected from panels approximately 0.5 m^2 from sites indicated on Figures 2 and 3. The richest copper mineralization occurs in East Brook with a maximum copper value of 12 650 ppm. No other elements indicated values of economic interest. The maximum value for Au is 9 ppb, Ag 2.1 ppm, Mo 27 ppm, Pb 14 ppm and Zn 165 ppm.

PREVIOUS ASSAYS:

These data are from diamond drill hole information reported in NSDME AR 11F/10C 27-0-21 (03 and 04) by J. A. Leslie, P. Eng. Total is 3450 m (11,319 feet) drilled on 23 holes, collared at angles of -45° to -60° and drilled to depths ranging from 45 m (150 ft) to 363 m (1192 ft). Core recovery ranged from 71% to 100%. Depth of overburden ranges from < 0.3 m to 18 m.

Diamond-drilling, East Brook Zone:		See Figure 2.
DDH #5	21 m	0.37% Cu.
DDH #1	13 m	0.37% Cu.
DDH #11	21 m	0.33% Cu.
DDH #2	29 m	0.40% Cu.
DDH #17	7 m	0.63% Cu.

MINERALIZATION:

The predominant sulphide mineral is pyrite which ranges in amount from < 1% to > 15%, generally richer in the most intensely sheared and altered sections, as disseminations, aggregates of grains along shear foliation and in veinlets. Chalcopyrite, to 1% + as anhedral grains, tends to occur in clusters and is commonly most abundant in the pyrite-rich zones and in association with chlorite (altered mafics). Some sections, particularly the most intensely sheared and altered rocks show chalcopyrite grains rimmed by hematite and covellite. Scattered clusters of grains of bornite with exsolved chalcopyrite and covellite rims, and a few scattered grains of native copper covellite rims, also occur.

GENESIS:

The East Brook style of copper mineralization occurring in phyllic (strongly sericitic, siliceous, pyritic), altered shear zones within broader zones of propylitic alteration (epidote, carbonate, albite (?), with lesser sericite and pyrite) is suggestive of deep seated porphyry type of deposition. Features characteristic of high level subvolcanic porphyry systems (strong porphyritic nature, diatremes, widespread crackle brecciation, argillic and potassic alteration), except for sericite, are not in evidence (Northcote, present study).

Sexton, 1986, discusses the characteristics of the Oban area Cu mineralization as compared to Appalachian type porphyry characteristics in terms of the following:

(a) lack of distinct porphyritic texture
(b) lack of Pb - Zn sulphides in the peripheral zone
(c) absence of phyllic zone

(c) absence of phyllic zone
(d) weak pyritization
(e) has propylitic zone
(f) potassic zone not obvious

The Oban occurrence may represent unmineralized core of the porphyry copper system, erosion having removed the main upper ore-bearing section. Sexton concludes, however, that Oban should not be classed as a porphyry system because the mineralization is directed along shear systems.

It would seem, however, that mineralization in the roots of porphyry systems, where confining pressure is greater than magma pressure (and where explosive brecciation is not possible), would be dependent upon directional shear systems as hydrothermal conduits and sites of mineralization. It is probable that the same mineralization processes occurred at Oban (possibly on a smaller scale) as in deep portions of other porphyry systems.

T1

TABLE 1
OBAN LITHOLOGIC SUMMARY

Sample No.	Lithology	Alteration	Mineralization	Form	Textures
88 OB 3481	Quartz diorite	Weak sericite, moderate epidote, chlorite and carbonate networks Chloritized mafics. Conspicuous quartz. K-spar absent.	Pyrite <3% Chalcopyrite approx 1% Malachite, hematite Iron and manganese stain	Clusters of grains in mafics disseminated, in veinlets On foliation surfaces	Local cataclasis
88 OB 3482	Quartz diorite	Carbonate, chlorite, epidote and sericite networks and stringers in cataclasis zones Conspicuous quartz, k-spar absent	Pyrite Chalcopyrite (few grains) Hematite	Clusters of grains in mafics	Crushed network
88 OB 3483	Shear zone Lenseids of crushed plutonic(?) rock	Strong sericite networks Lesser epidote, sericite lenseids Conspicuous quartz, k-spar absent	Pyrite, chalcopyrite, neodigenite(?), covellite, native copper, hematite	Clusters of chalcopyrite grains in siliceous fragments, disseminated grains pyrite throughout cataclasis zones	Sheared, cataclastic zones
88 OB 3484	Sheared quartz diorite	Sericite, epidote networks in foliated cataclastic groundmass. K-spar absent	Pyrite <10% Chalcopyrite <1% Iron staining	Chalcopyrite in siliceous lenseidal fragments, mineralization preceded last cataclasis. Also unevenly disseminated in patches and in fractures associated with pyrite.	Foliated with resonant lenseids of granitic texture
88 OB 3485	Shear zone	Strong sericite, quartz. K-spar absent	Pyrite, chalcopyrite Sphalerite(?)	Pyrite with chalcopyrite blebs and irregular grains.	Foliated, sheared.
88 OB 3486	Quartz diorite	Chlorite alteration of mafic. Epidote, drusy siliceous zones. K-spar absent.	Pyrite, chalcopyrite, covellite, neodigenite(?), hematite.	Strong disseminated pyrite and blebs in fractures and associated with mafics.	Shattered, cataclastic
88 OB 3487	Sheared pluton(?)	Strong sericite, carbonate, with introduced quartz. K-spar absent.	Bornite, neodigenite, pyrite chalcopyrite, sphalerite Malachite	Bornite with exsolution lamellae Pyrite blebs and fracture fillings disseminated chalcopyrite	Sheared, foliated
88 OB 3488	Sheared, crushed pluton	Sericite, epidote, chlorite, with silicified zones; diffuse quartz veins. K-spar absent.	Pyrite <10%, chalcopyrite <1% covellite, neodigenite(?) Malachite	In fractures and with mafics Covellite, neodigenite(?) rimming chalcopyrite.	Granitic, sheared, crushed.
88 OB 3489	Crushed pluton	Strong sericite, carbonate with quartz veinlets. K-spar absent.	Pyrite, chalcopyrite, neodigenite. Malachite	Mainly in crackle fractures	Granitic, crushed.
88 OB 3410	Shear zone	Strong sericite network. Chlorite, epidote replacing mica. Introduced quartz and veins. K-spar absent.	Pyrite, chalcopyrite, trace sphalerite. Covellite, neodigenite. Malachite, hematite. Iron and manganese stain.	Chalcopyrite rimmed by covellite, neodigenite, and hematite	Shear foliated plutonic, quartz lenseids.
88 OB 3411	Mesocratic quartz diorite	Sericite network. Carbonate clots. Epidote, chlorite altered mafic. K-spar absent.	Weak pyrite, chalcopyrite, sphalerite (?). Hematite. Malachite.	Pyrite rimmed by hematite and sphalerite(?). Malachite in vuggy siliceous zones.	Plutonic crushed,cataclastic.
88 OB 3412	Sheared pluton	Network of epidote, sericite, chlorite around quartz grains and aggregates of grains. Sericite, epidote, with chlorite replacing mafics. K-spar absent.	Weak pyrite	Disseminated	Sheared foliated texture
88 OB 9181	Felsic crystal tuff	Scattered adsorbed quartz and sericitic feldspar in a tuffaceous groundmass, sericitic network. K-spar absent.	Trace pyrite.	Disseminated	Crackle fracturing, weak foliation.
88 OB 9182	Felsic crystal tuff	Quartz, subrounded, resorbed. Sericitic quartz-feldspar matrix. Moderate sericitic crackle fracture network. Quartz segregations. K-spar absent.	Trace pyrite.	Disseminated	Crackle fracturing, weak foliation.
88 OB 9183	Foliated pluton	Broken and strained quartz and feldspar fragments surrounded by strong sericitic network through cataclastic matrix. Chlorite in whispy stringers. Epidote in fine granular assoc with chlorite. K-spar absent.	Trace pyrite.	Disseminated	Fragmental, cataclastic, foliated
88 OB 9184	Sheared andesite(?)	Epidote, chlorite, weak sericite, whispy lenseids. Altered aphanitic K-spar absent.	Trace pyrite.	Disseminated	Foliated by shear.
88 OB 9185	Felsic crystal tuff	Rounded resorbed quartz grains. Plagioclase dusted alteration. Strong sericitic network. Weak patches of carbonate. K-spar absent	Trace pyrite. Iron stained fractures.	Disseminated	Eutexitic texture

T1 (con't)

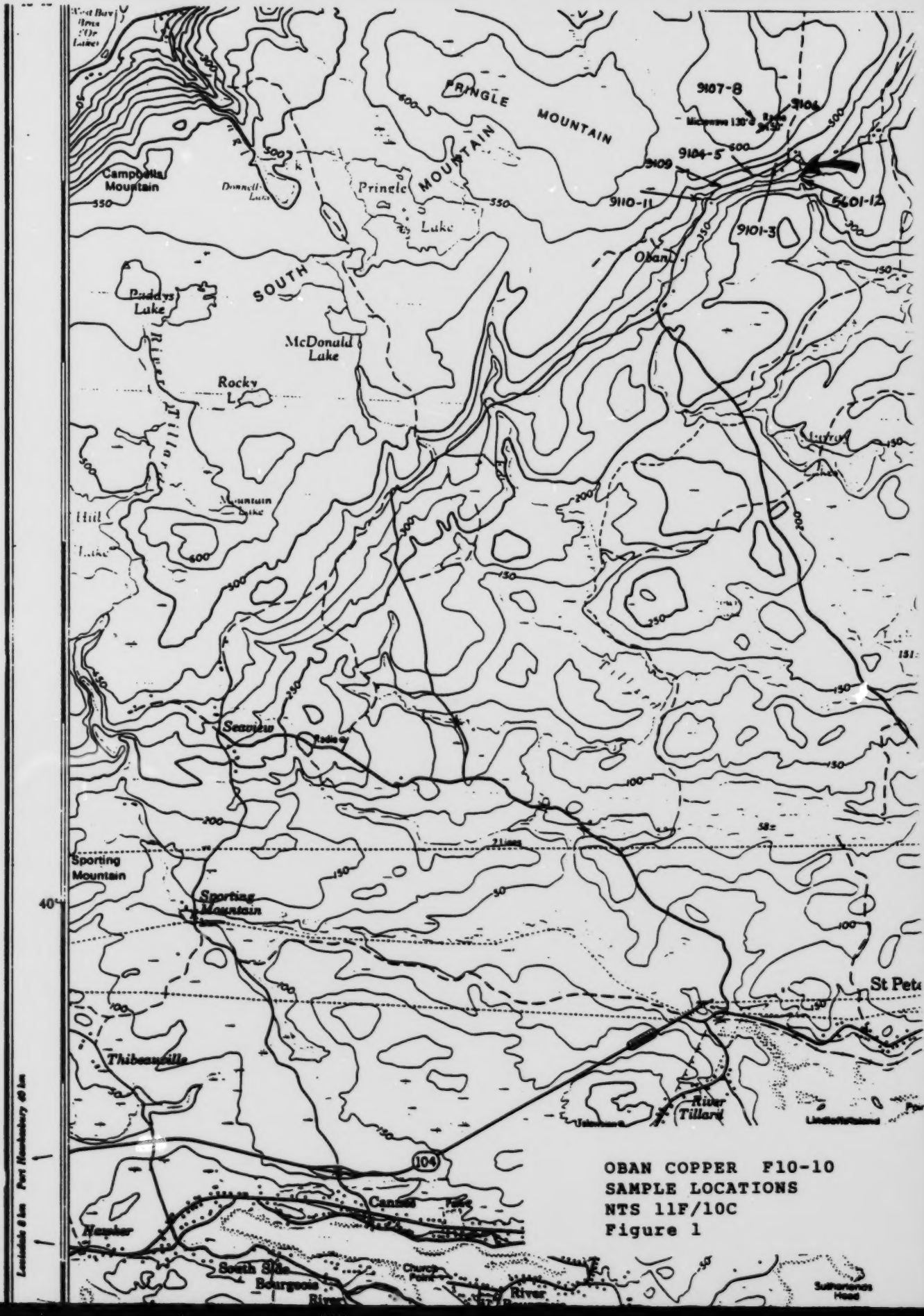
Sample No.	Lithology	Alteration	Mineralization		Texture
88 OB 9106	Quartz diorite	Veined by quartz, patches of epidote, K-spar, muscovite. Network of sericite and chlorite.	Pyrite 5% Chalcopyrite <1% Hematite	Pods and disseminated	Network of late crackle zones
88 OB 9107	Quartz diorite	Strong sericitic alteration of plagioclase. Trace carbonate. Chlorite-epidote alteration of micas. K-spar absent.	Pyrite <1% Trace chalcopyrite	Irregular grains Few scattered irregular grains	Crackle chlorite-epidote networ
88 OB 9108	Fine intrusive? Volcanic?	Epidote in clusters of grains interstitial to plagioclase and filling discontinuous crackles. K-spar absent.	Trace pyrite	Disseminated	Interlocking feldspar crystals with preferred orientation.
88 OB 9109	Fine intrusive? Volcanic?	Quartz <5% anhedral grains. Plagioclase speckled by sericite giving a granular texture. Epidote, chlorite, altered sphene? K-spar absent.	Trace pyrite	Disseminated	Feldspar preferred orientation.
88 OB 9110	Sheared intrusive	Epidote, interstitial granular and as irregular granular veinlets which with sericite forms two-stage networks. Chloritic seams, late, foliated, some associated with epidote. K-spar absent.	Trace pyrite	Disseminated	Granitic interlocking. Sheared, cataclastic. Foliated, mottled.

T2

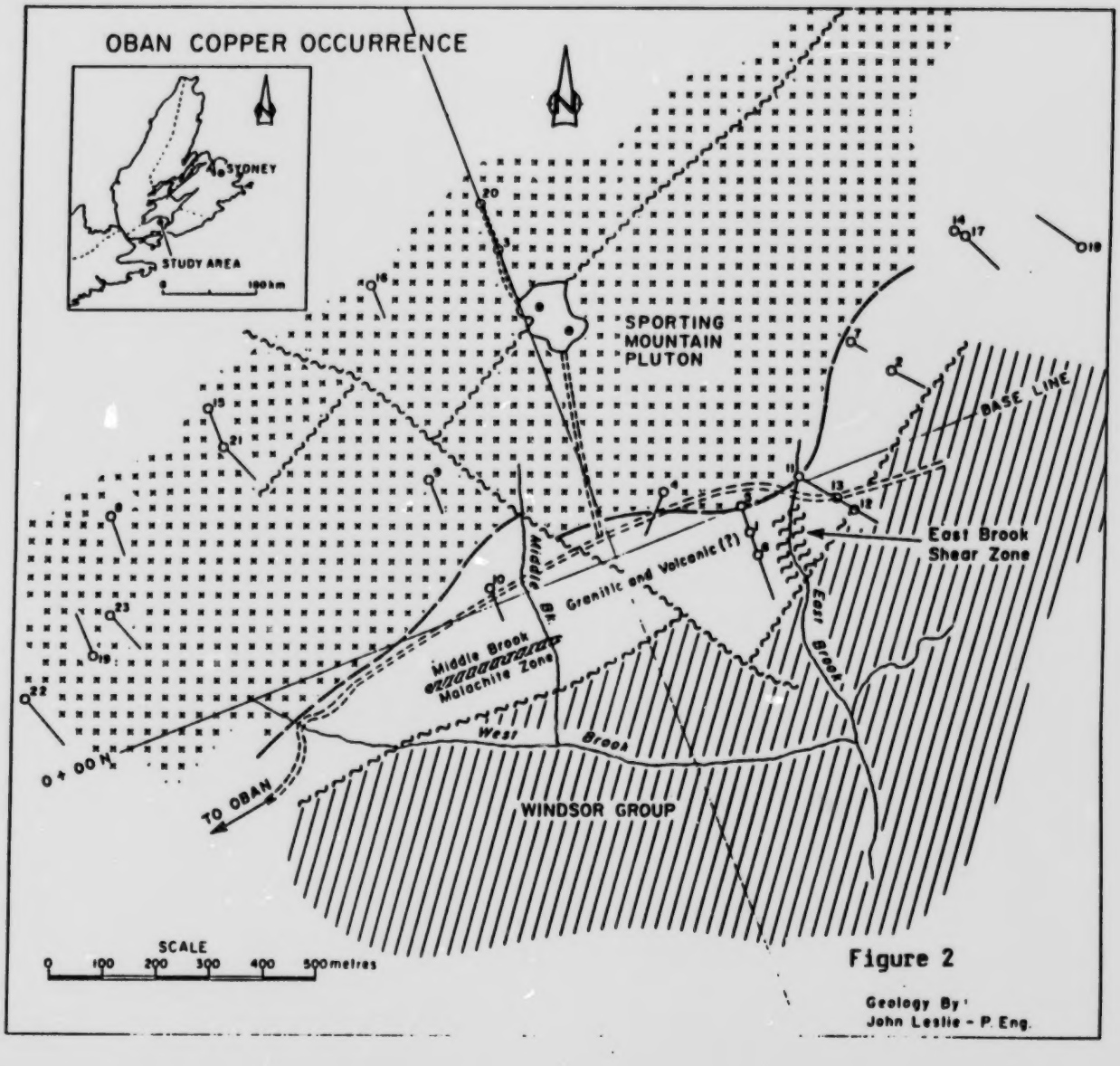
TABLE
OBWN CHEMICAL

OBWN ATOMIC ABSORPTION

TABLE 2
CHEMICAL ANALYSES



OBAN COPPER F10-10
SAMPLE LOCATIONS
NTS 11F/10C
Figure 1


OBAN COPPER OCCURRENCE
SYDNEY
STUDY AREA
190 km
SPORTING MOUNTAIN PLUTON
BASE LINE
East Brook Shear Zone
Middle Br. Granitic and Volcanic (?)
Middle Brook Malachite Zone
East Brook
West Brook
0 + 00 N
TO OBAN
WINDSOR GROUP
SCALE
0 100 200 300 400 500 metres
Figure 2
Geology By:
John Leslie - P. Eng.

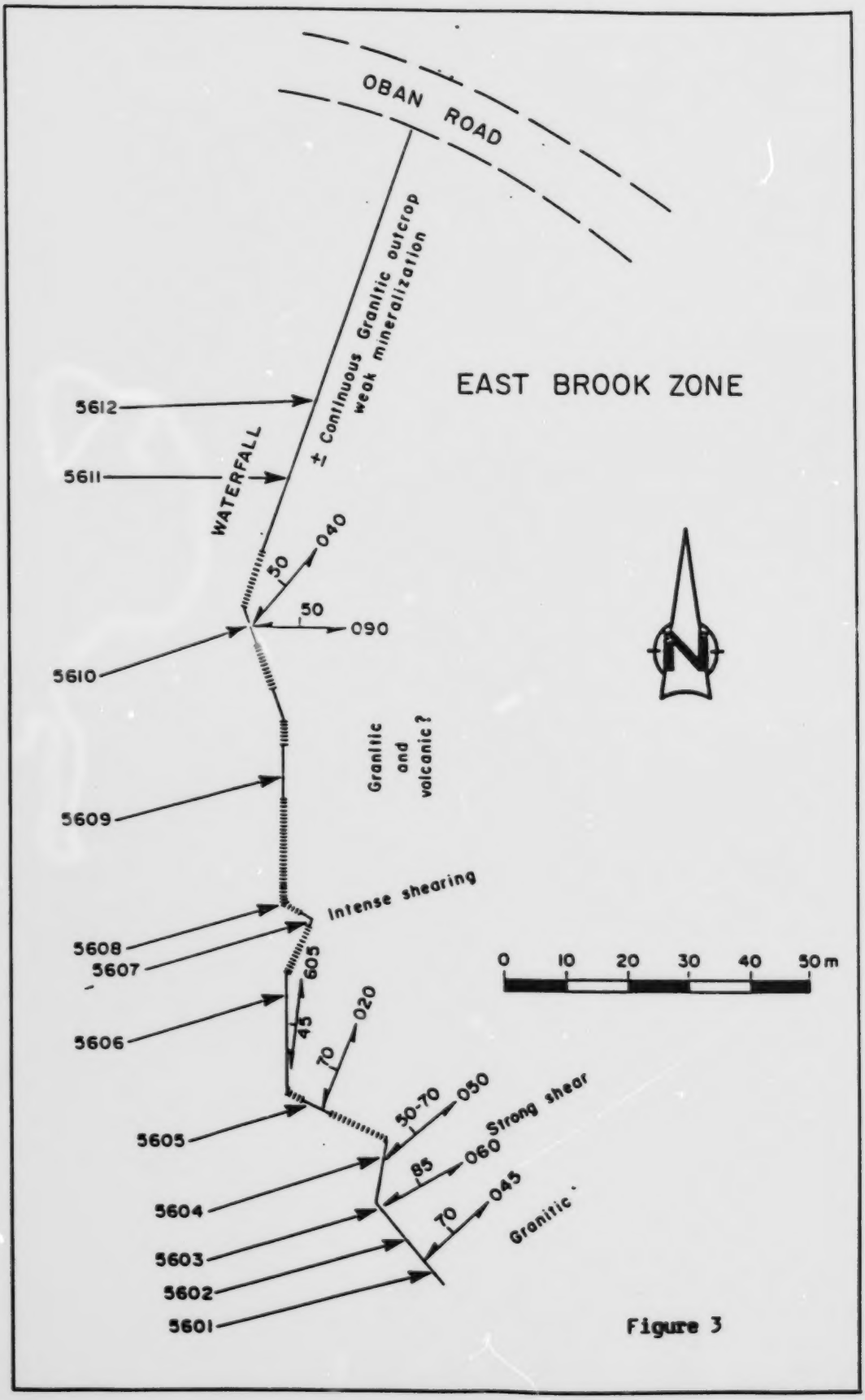
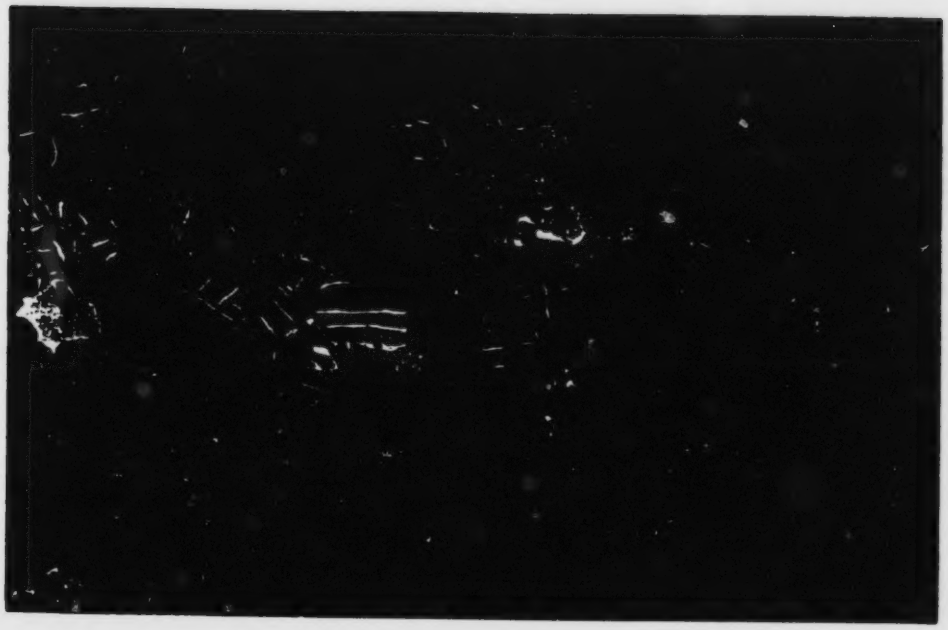

OBAN ROAD
EAST BROOK ZONE
± Continuous Granitic outcrop
weak mineralization
WATERFALL
5612
5611
5610
5609
5608
5607
5606
5605
5604
5603
5602
5601
50
040
50
090
Granitic
and
volcanic?
Intense shearing
605
45
020
70
50-70
050
Strong shear
85
060
70
045
Granitic
0
10
20
30
40
50 m
N

Figure 3



Scale 0.1 mm

Sample 88 OB 5607

Chalcopyrite and chalcopyrite exsolution in bornite and neodigenite (?).

Scale 0.1 mm

Sample 88 OB 5606

Pyrite cut by chalcopyrite with chalcopyrite blebs, and chalcocite rimmed by covellite.

Sample 88 OB 5604 Scale 0.1 mm

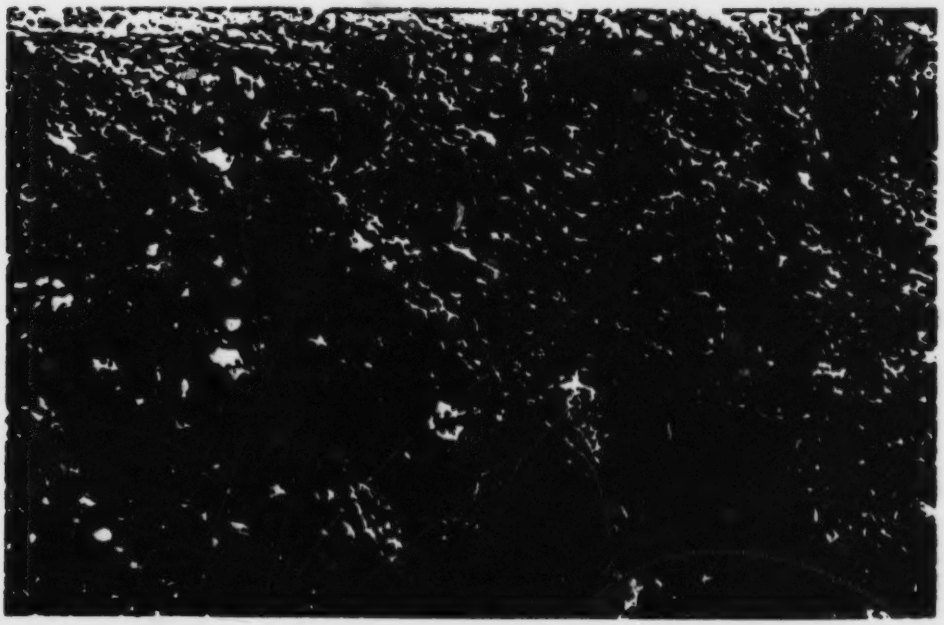
Chalcopyrite (yellow) in siliceous fragments and pyrite (white) in siliceous fragments and cataclastic matrix.

Sample 88 OB 5604 Scale 0.1 mm

Chalcopyrite (yellow) in siliceous fragments and pyrite (white) in composite fragments.

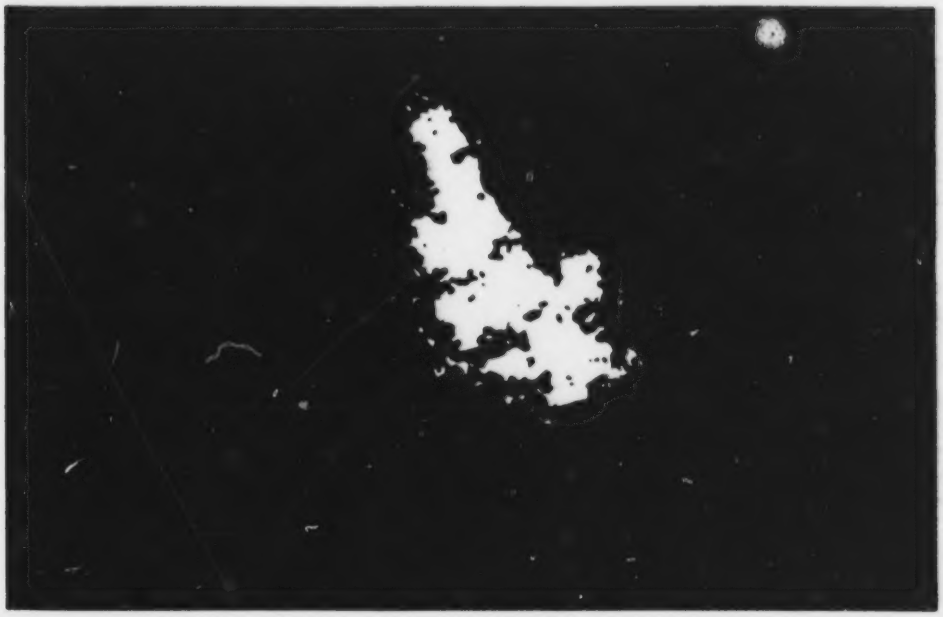
Sample 88 OB 5601 Scale 0.1 mm

Granitic texture with finer cataclasis zones.



Sample 88 OB 5603 Scale 0.1 mm

Two (+) episodes of shearing showing siliceous (dark) and sericitic (multicoloured) alteration.



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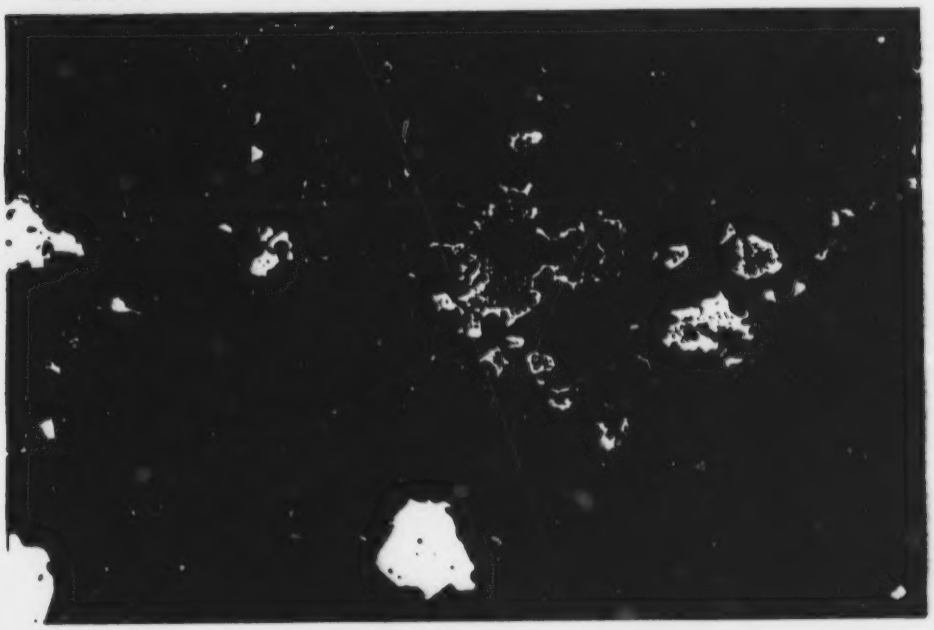
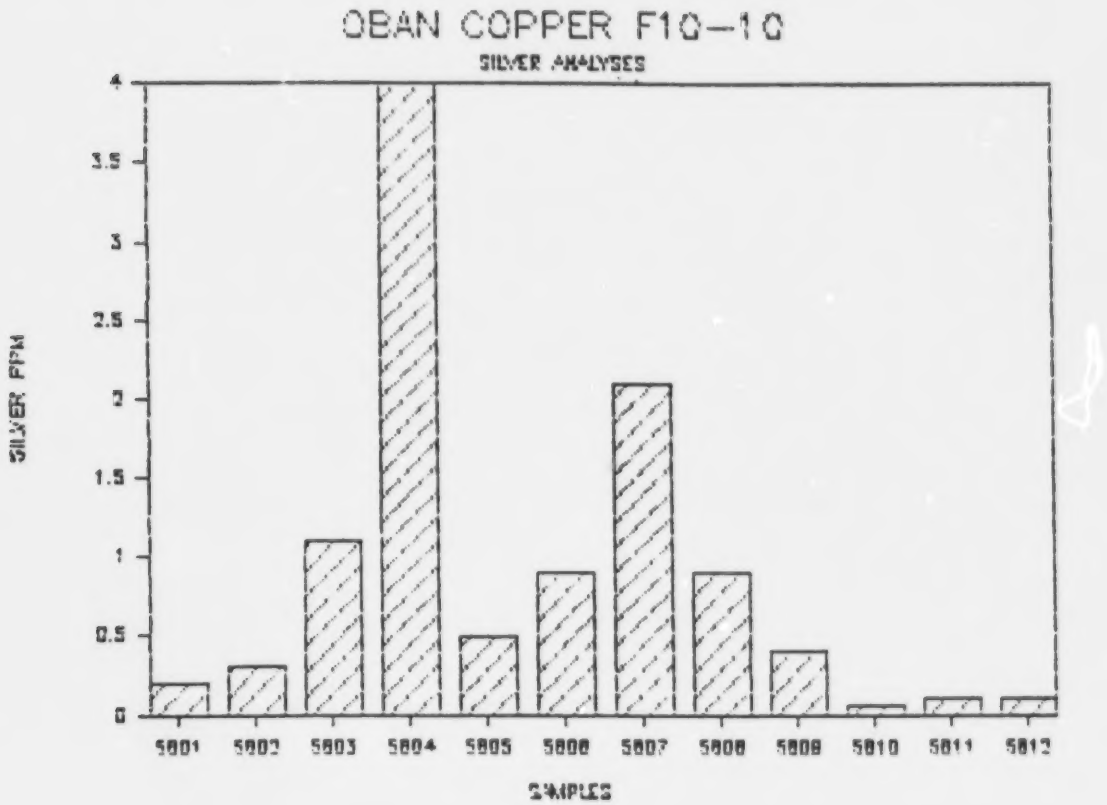
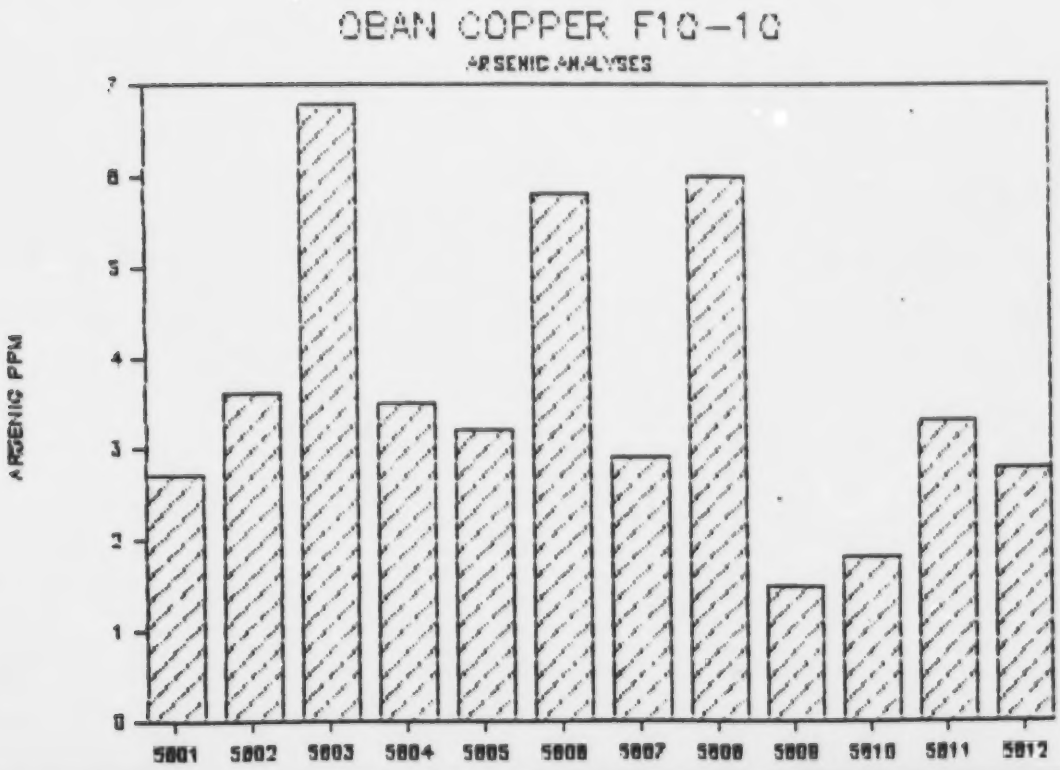
Sample 88 OB 5603
Native copper. light (overexposed) rimmed with chalcocite (blue).



Scale 0.1 mm

Sample 88 OB 5603
Chalcopyrite (yellow) rimmed and veined by bornite and neodigenite (?).


OBAN COPPER F10-10
SILVER ANALYSES
SILVER PPM
4
3.5
3
2.5
2
1.5
1
0.5
0
5801
5802
5803
5804
5805
5806
5807
5808
5809
5810
5811
5812
SAMPLES


OBAN COPPER F10-10
ARSENIC ANALYSES
ARSENIC PPM
7
6
5
4
3
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0
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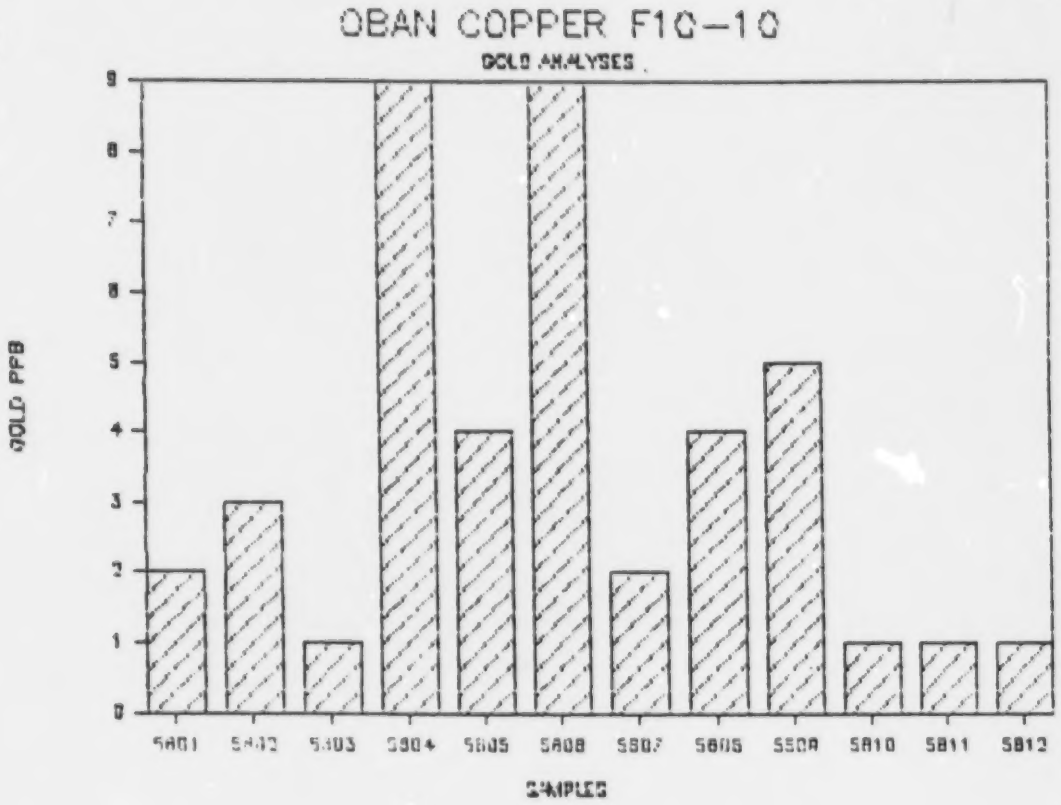
5810
5811
5812


OBAN COPPER F10-10
GOLD ANALYSES
GOLD PPB
0
1
2
3
4
5
6
7
8
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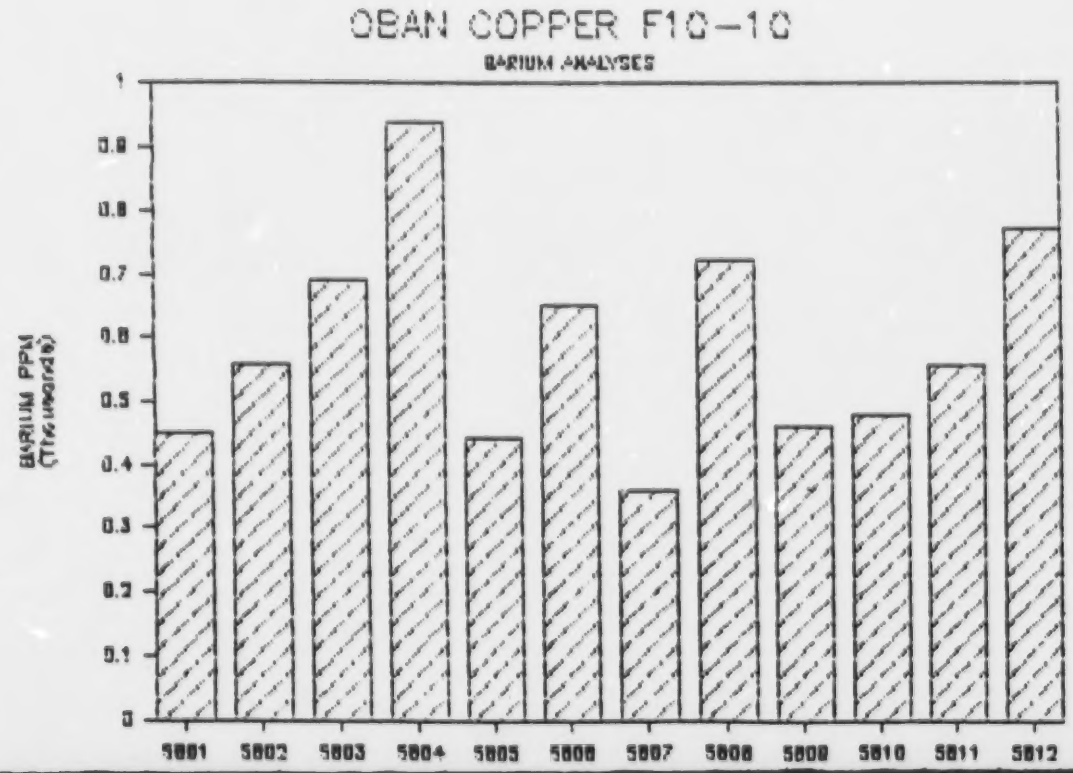
SAMPLES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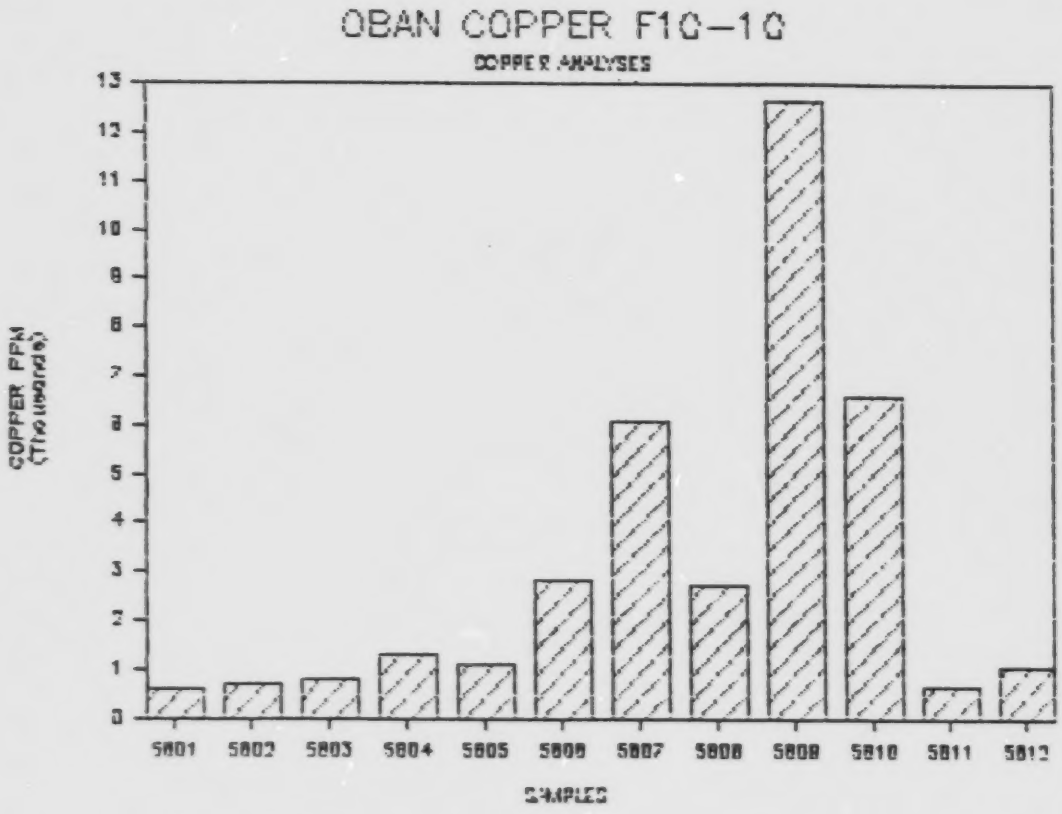
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(Thousands)
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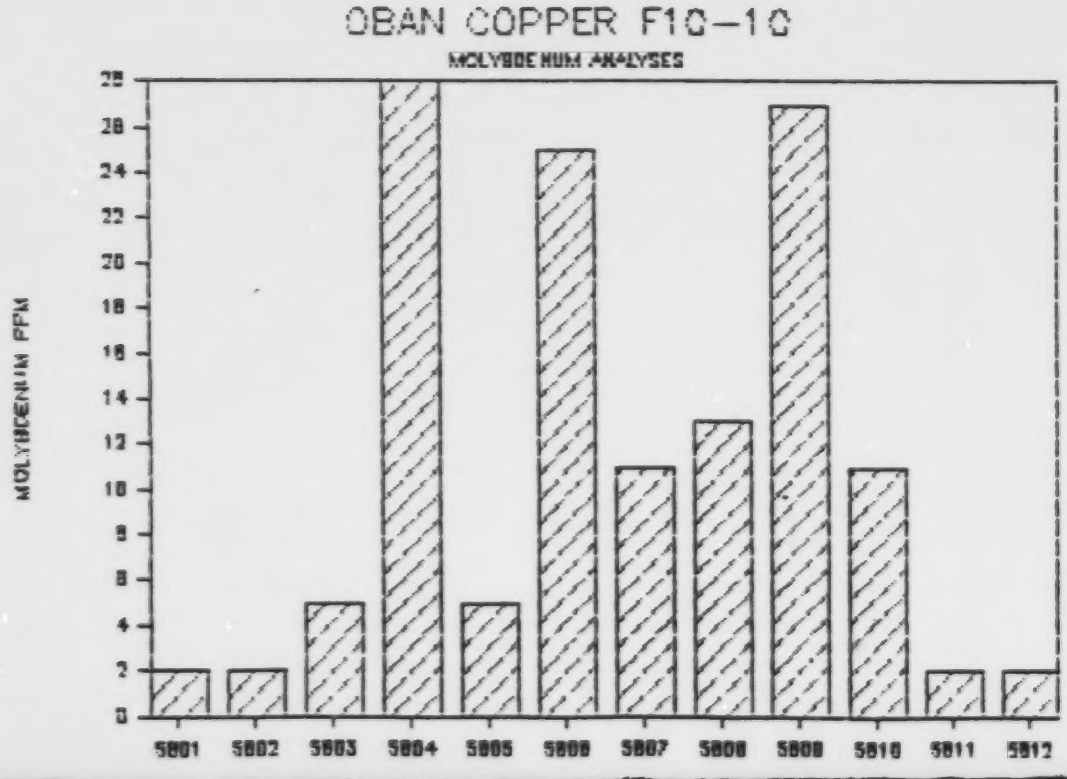
SAMPLES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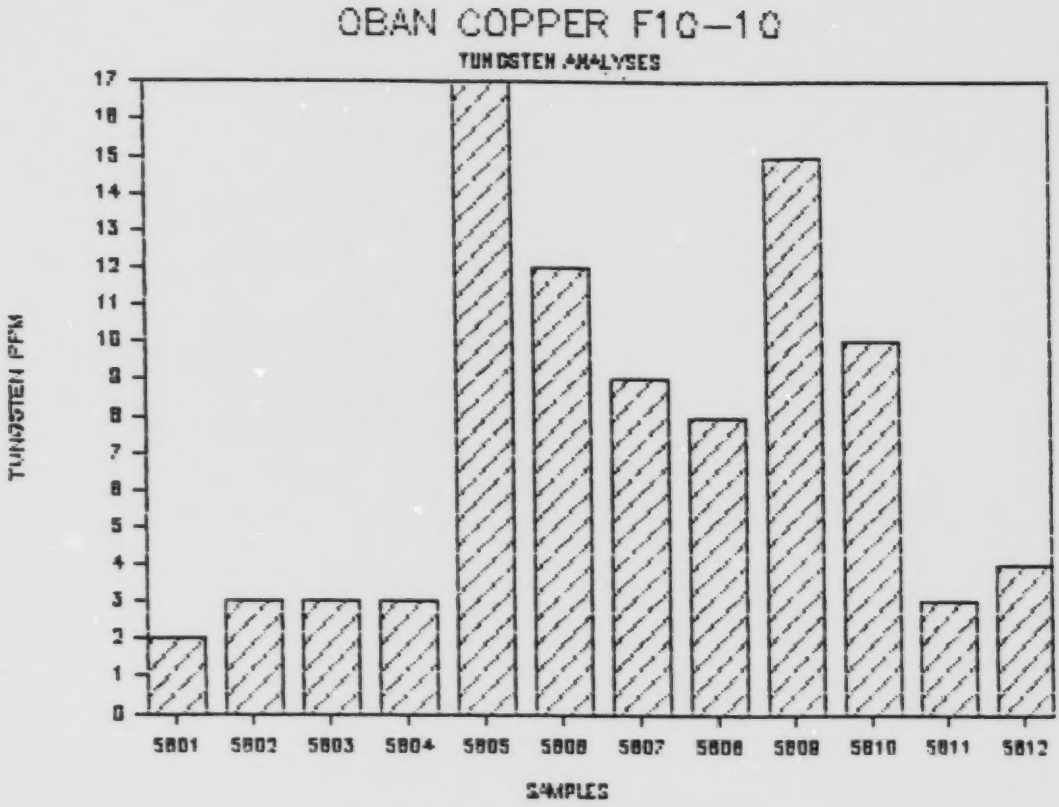
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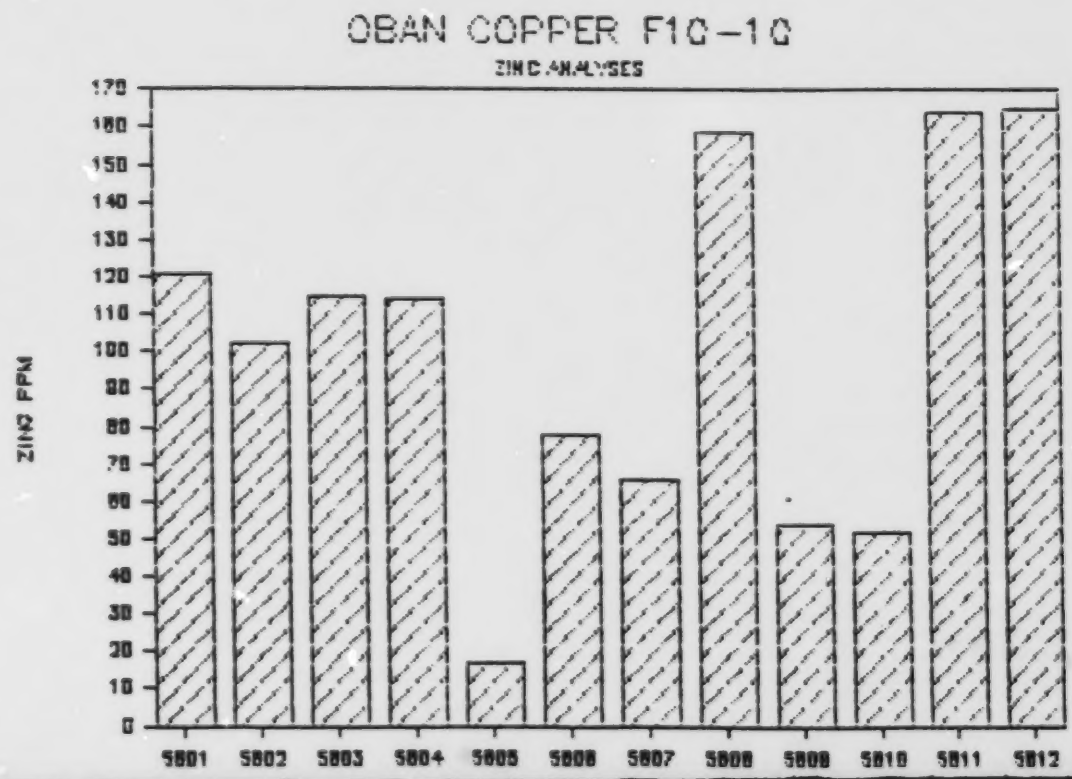
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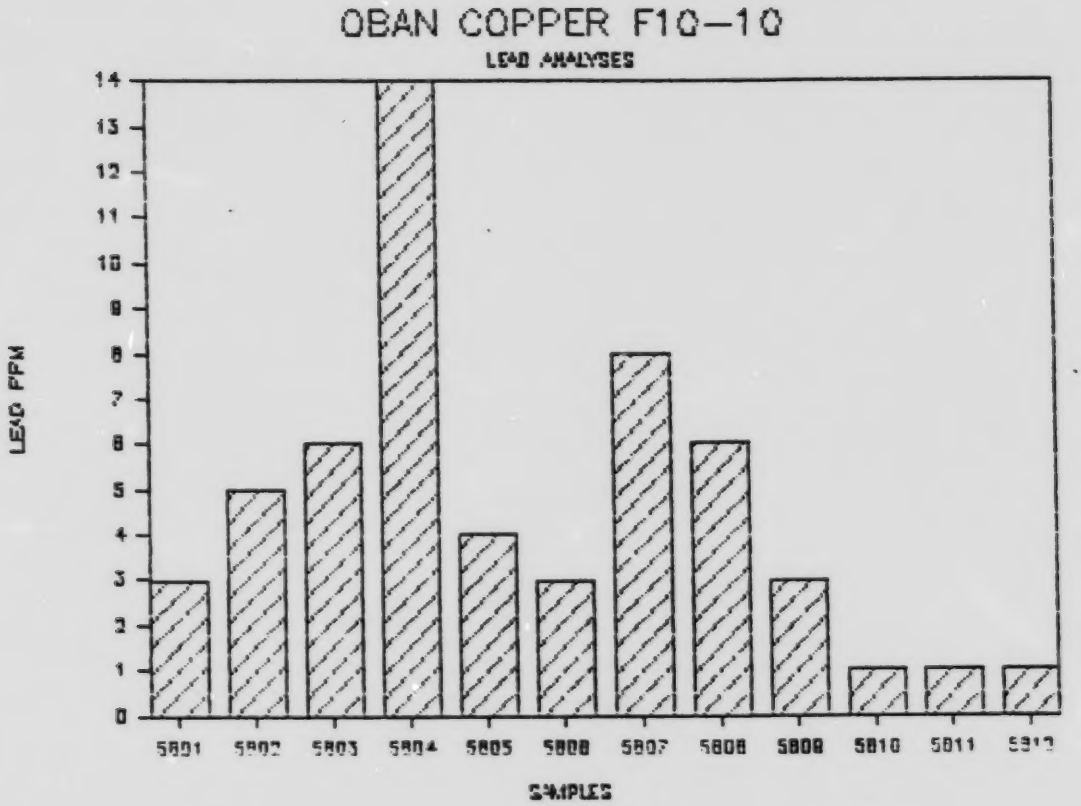
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LEAD PPM
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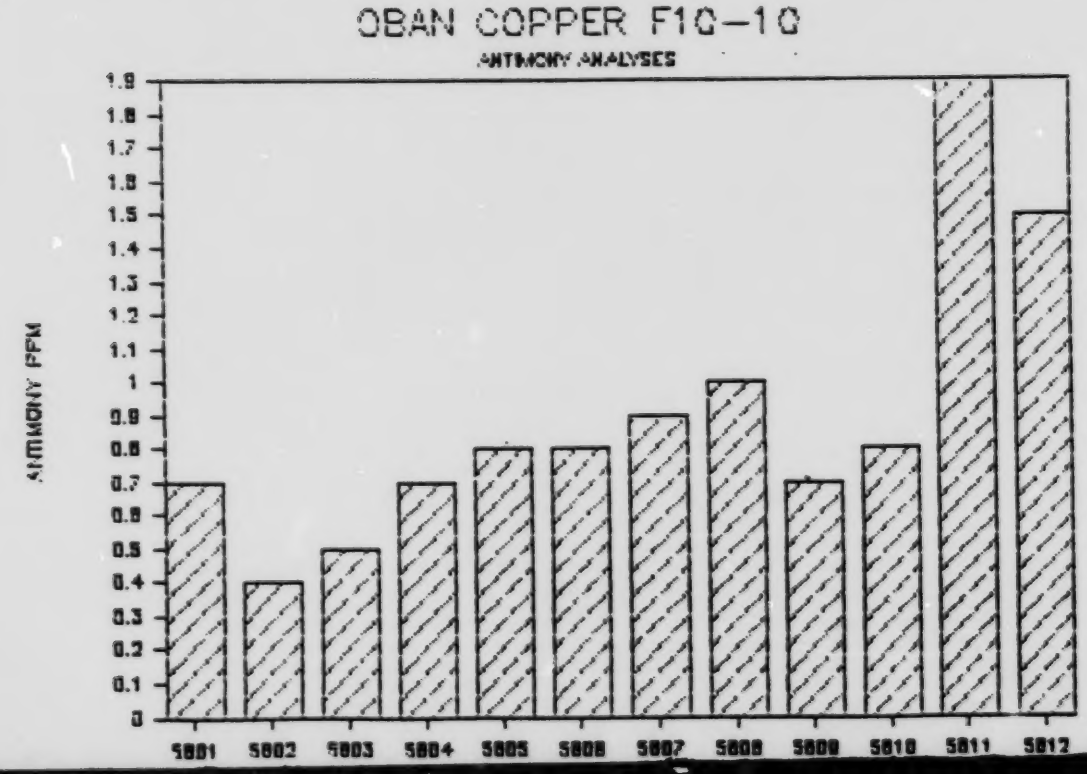
SAMPLES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ANTIMONY ANALYSES
ANTIMONY PPM
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CAMPBELL MOUNTAIN

OCCURRENCE: **CAMPBELL MOUNTAIN F10-21 (Copper, silver, gold)**
(PRINGLE BROOK)

LOCATION: **5066290 N 655750 E NTS 11F/10 C laps onto 11F/11 D**

In a seasonally dry stream channel approximately 1.5 km southwest of Pringle Brook at approximately 130 m elevation, about 150 m to the east of the west margin of 11F/10 C. The workings consist of a shaft, caved to about 8 m deep, on the west side of the stream channel. The occurrence is not on Pringle Brook as the alternate name would suggest.

ACCESS:

Drive to Campbell's Point on the highway between Dundee and Cape George Harbour along the south side of West Bay, Bras D'Or Lake. Access is by 4 wheel drive road through Roy Campbell's property for 0.6 km where the access road crosses a seasonally dry small stream channel. Follow quartz float for about 200 m upstream to the old shaft (Figure 1).

REFERENCES:

NSDME AR 85-077. Silver, Campbells Mountain, Richmond County, Nova Scotia. Tri Exploration Limited, by John E. Dawe. Report on prospecting, and rock and soil geochemical surveys, 1985.

WORKINGS:

An old shaft is located on the west side of the creekbed, and is caved to about 8 m depth. A trench follows the vein for about 5 m northwest. The same vein also outcrops in west side of stream and quartz fragments are visible in overburden on east stream bank. There was originally a built up path crossing the stream and out to a dump on the east side. Three small piles of white quartz are presently visible but the main dump is grown over and a soil profile is developing.

Abundant quartz float, including some large blocks removed from the shaft and adjacent trench, is scattered down the stream channel at least as far as the access road crossing.

PREVIOUS WORK:

This property was researched by Alex Thomson of Tri Exploration Ltd. (NSDME AR 85-077). A vertical shaft was sunk to a depth of about 120 feet, and subsequently some drifting was carried out at about the 90 foot level. Silver ore was reported to have been mined by the Campbell family in the 1860s with the land still owned by direct descendants, Roy Campbell.

In 1985 Noranda Exploration and Tri Exploration Ltd. carried out extensive prospecting and sampling.

PREVIOUS ASSAYS:

TRI EXPLORATION LIMITED (1985) (Fig. 2)

Sample No.	As ppm	Au g/t	Ag ppm	Cu ppm	Pb ppm	Zn ppm
Tex PB-85-1	--	1.53	0.5	66	15	71
SS-X	90	1.63	37.5	39800	--	--
-8	110	0.39	37.3	2920	--	--
-11	100	0.10	1.5	37	--	--
8034	--	[0.08]*	[18.10]*	8.59%	--	--

* oz/ton

NORANDA EXPLORATION (1985) (Fig. 3)

Sample No.	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
S-1	138	44	65	8.6	150
S-2	43	24	107	0.8	10
S-3	28	22	120	0.8	10
S-4	10	18	60	0.5	10
S-5	12	12	32	0.7	10
S-6	651	62	100	4.8	40
S-7	30	10	112	1.0	10
S-8	50	20	75	0.9	10
S-9	20	20	138	0.8	10
S-#2-1/4MIUP	18	18	155	0.8	10

RESULTS OF 1978 FIELD CHECK (Northcote and Thomson)

The showing consists of a sheared/shattered white quartz vein in strongly sheared/shattered quartz monzonite (?) of late Precambrian/Cambrian age. The Sporting Mountain Pluton is possibly subvolcanic or deeper plutonic equivalent to flanking Fourchu Group felsic and mafic tuff, with basalt, andesite, and rhyolite.

MINERAL OCCURRENCE: (Northcote)

Quartz vein, white quartz, generally massive appearance, locally shows coarse crystal outlines, intensely shattered, locally sheared by late movement. Contains small segregations of chlorite.

Main quartz vein is quite regular, 0.6 to 0.8 m wide with about 8 m vertical exposure in shaft and is visible nearly continuously for about 10 m on surface. In the shaft the vein is offset by near flat lying fractures. Attitude of vein 120°/75° to 80° SW. There is little evidence of additional veins in the stream channel walls below the occurrence. Only widely scattered quartz float in the stream bed above the occurrence suggests few quartz veins would be anticipated upstream.
Shear/gouge approximately 0.3 m wide follows vein footwall. Both hanging wall and footwall show development of subsidiary veinlets from a fraction of a cm to several cm wide. The wider veinlets are subparallel to the major vein. Narrow veinlets, although possibly horsetailing off the major vein, seem to diverge at high angles, are more irregular, and locally form weak stockworks extending 0.5 m to almost 1.0 m outwards into both walls.

Much of the quartz debris and material on the dumps appears to be barren. Where mineralized, the quartz vein and debris generally shows sparsely distributed blebs of sulphides, mainly chalcocite and bornite(?), or rusty oxidized pits. Locally some fragments of quartz debris show strongly mineralized patches of chalcocite, bornite(?) and tetrahedrite(?) with silver values. The strongly mineralized patches suggest that they are of limited extent and are likely widely scattered.

TABLE 1

CAMPBELL MOUNTAIN SAMPLES

87 PB 8001 Scattered quartz debris from vein at creek channel.

87 PB 8002 2.5 ft footwall quartz monzonite at NW end of vein exposure. Several near vertical quartz veinlets were noted in this section of footwall.

87 PB 8003 "High grade" selected mineralized quartz vein material from a local zone of debris in stream bed below shaft area. The analytical values from this sample do not represent average grade.

87 PB 8004 Plutonic country rock.

87 PB 8005 Chip sample across 0.75 m quartz vein at NW end.

87 PB 8006 Footwall gouge, approximately 0.3 m wide taken at site 8002 and 8005.

87 PB 8007 Quartz vein material from small dumps on east side of stream.

RESULTS OF ANALYSES: (Northcote)

A total of seven samples were sent to Bondar Clegg Laboratory, Ottawa, for a combination of Direct Irradiation/INAA Au + 33, Atomic Absorption, and Whole Rock analyses. The results of these analyses are listed on Table 2. The selected sample with best observed copper sulphide mineralization gave values of 6365 ppb Au and 33.4 ppm Ag. Other less mineralized samples gave values ranging between 40 and 245 ppb Au, and 1.1 to 3.3 ppm Ag.

The occurrence is of metallogenic significance for copper, gold and silver. If a genetic relationship can be demonstrated between vein Cu, Au, and Ag at Campbell Mountain and the very deep porphyry type copper mineralization at Oban, the exploration potential of the Sporting Mountain plutonic - Fourchu volcanic complex would be greatly enhanced.

CAMPBELL MOUNTAIN F10-21
NTS 11F/10C-D
Figure 1

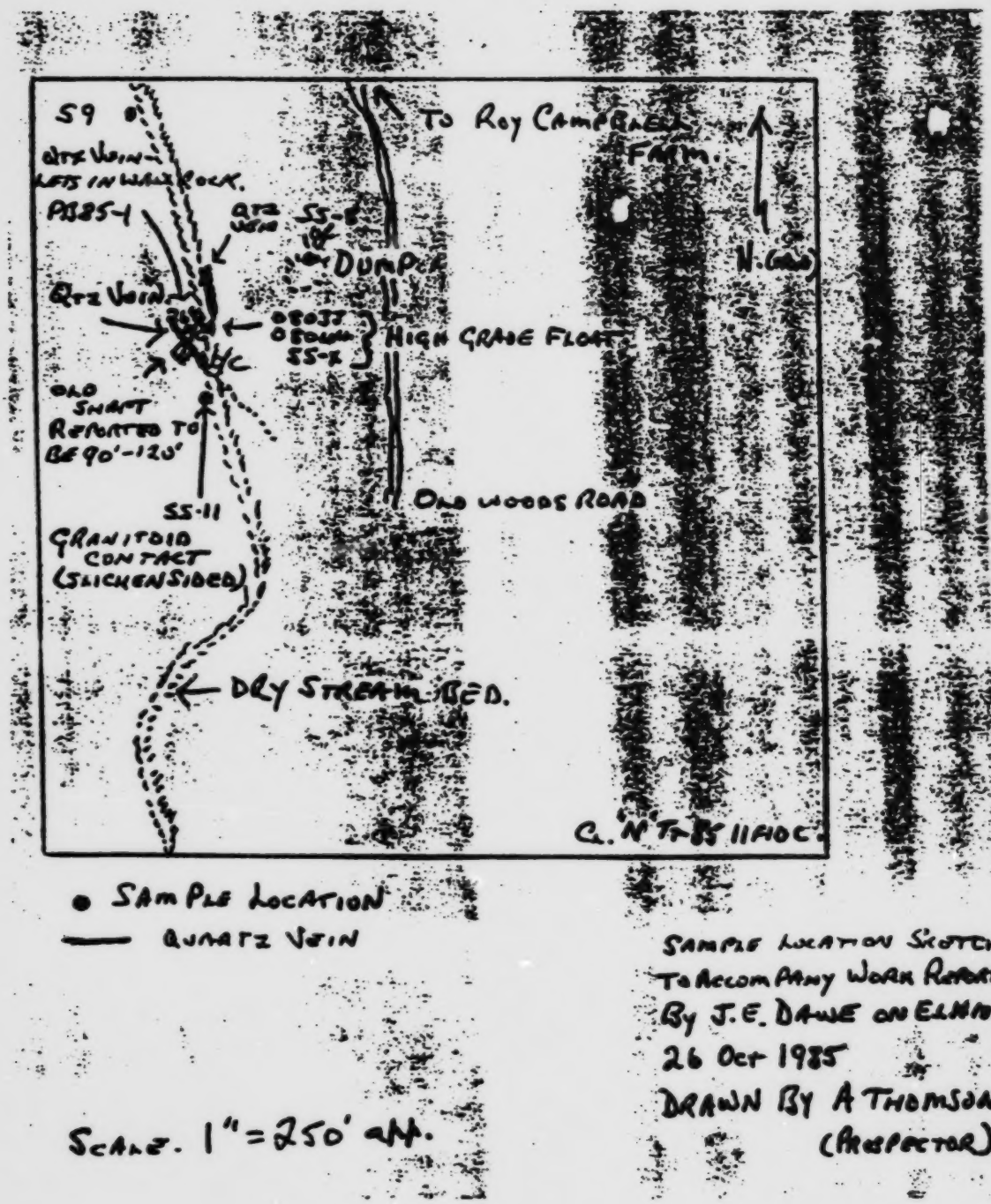

S9
QTZ VEIN - LEFTS IN WALL ROCK.
P1385-1
QTZ VEIN
QTZ VEIN
OLD SHAFT REPORTED TO BE 90'-120'
SS-11
GRANITOID CONTACT (SLICKENSIDED)
DRY STREAM BED.
TO ROY CAMPBELL FARM.
DUMP
HIGH GRADE FLOAT
OLD WOODS ROAD
N. (GRID)
SAMPLE LOCATION
QUARTZ VEIN
SCALE. 1" = 250' apx.
SAMPLE LOCATION SKETCH TO ACCOMPANY WORK REPORT BY J.E. DAWE ON ELMAR 26 Oct 1985 DRAWN BY A THOMSON (INSPECTOR).

Figure 2

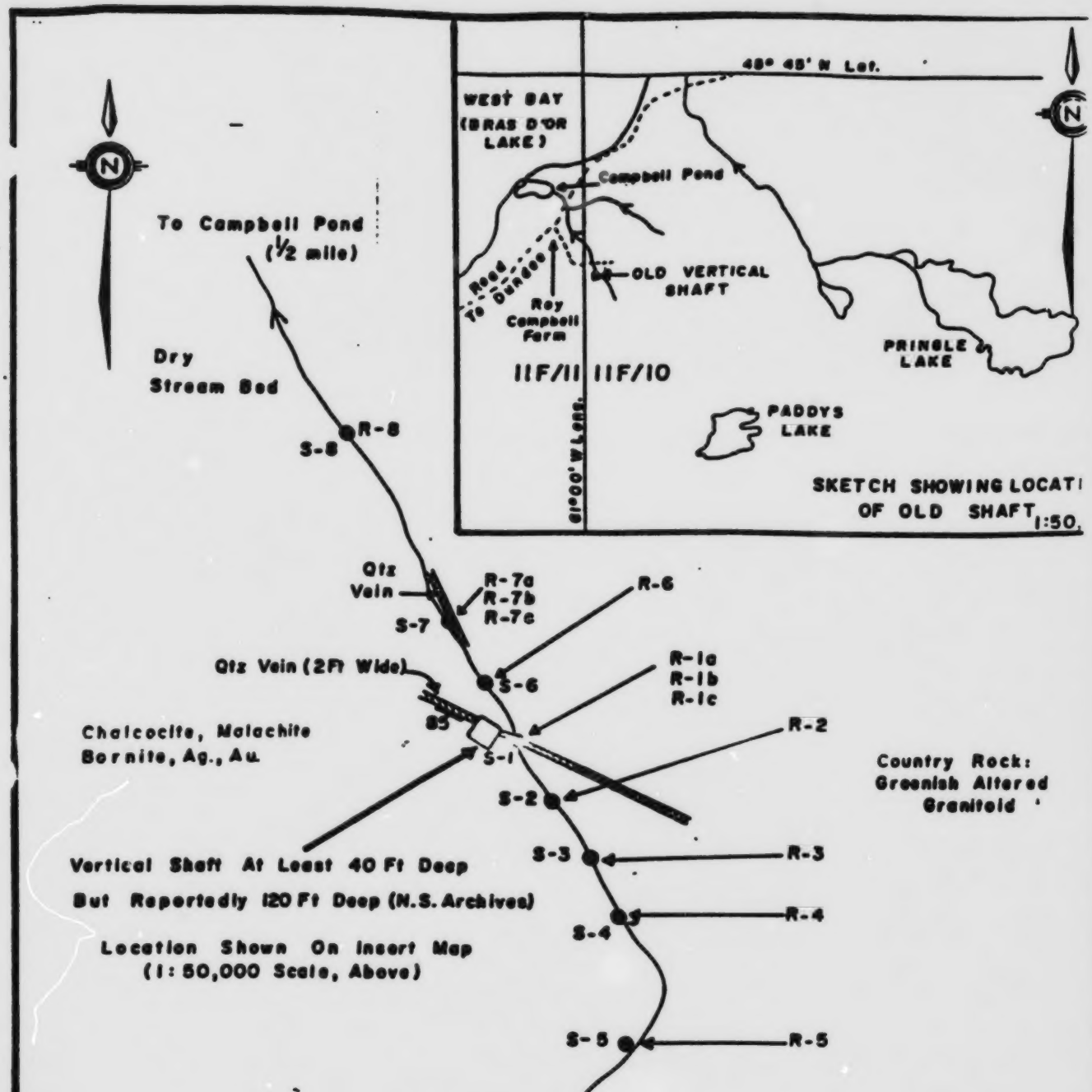


Figure 3

	TRIEX PROPERTY
	CAMPBELL'S POND Cu, Ag, Au, PROSPECT CAPE BRETON IS. N.S.
Proj. No. 4250	R. Mann — May / 1985
NTS 11F/10,11	R. Mann / D. Pryo — 1:500
Drg. No. 1	brunswick mining — Brunswick Mining and Smelting Corp. Ltd.

T15

CAMPBELL MOUNTAIN Au > 33

TABLE 2
CAMPBELL MOUNTAIN ANALYSES

87-[illegible]	Hak																	

[redacted]

WASHABUCK RIVER

OCCURRENCE: WASHABUCK RIVER F15-12 (Weakly anomalous for Pb and Zn)

LOCATION: 5093030 N 661250 E NTS 11F/15C

ACCESS:

The outcrop area is in a stream bed leading from the west side of Cains Mountain, 250 m upstream from Washabuck-Cains Mountain junction. Outcrop area is about 100 m long.

REFERENCES:

NSDME AR 11F/15C 07-Q-09 (04). Base metals, Jubilee, Victoria County, Nova Scotia. Amax Exploration Inc., by K. R. Clemiss and G. P. Isenor. Geological and drillhole location maps and drillhole logs, 1979.

RESULTS OF 1988 FIELD CHECK (Northcote and Armitage)

This occurrence is at the basal Windsor-Horton contact. Outcrop consists of thin bedded, fetid grey-buff limestone underlain by grit/pebble conglomerate.

Bedding 024°/16° NW

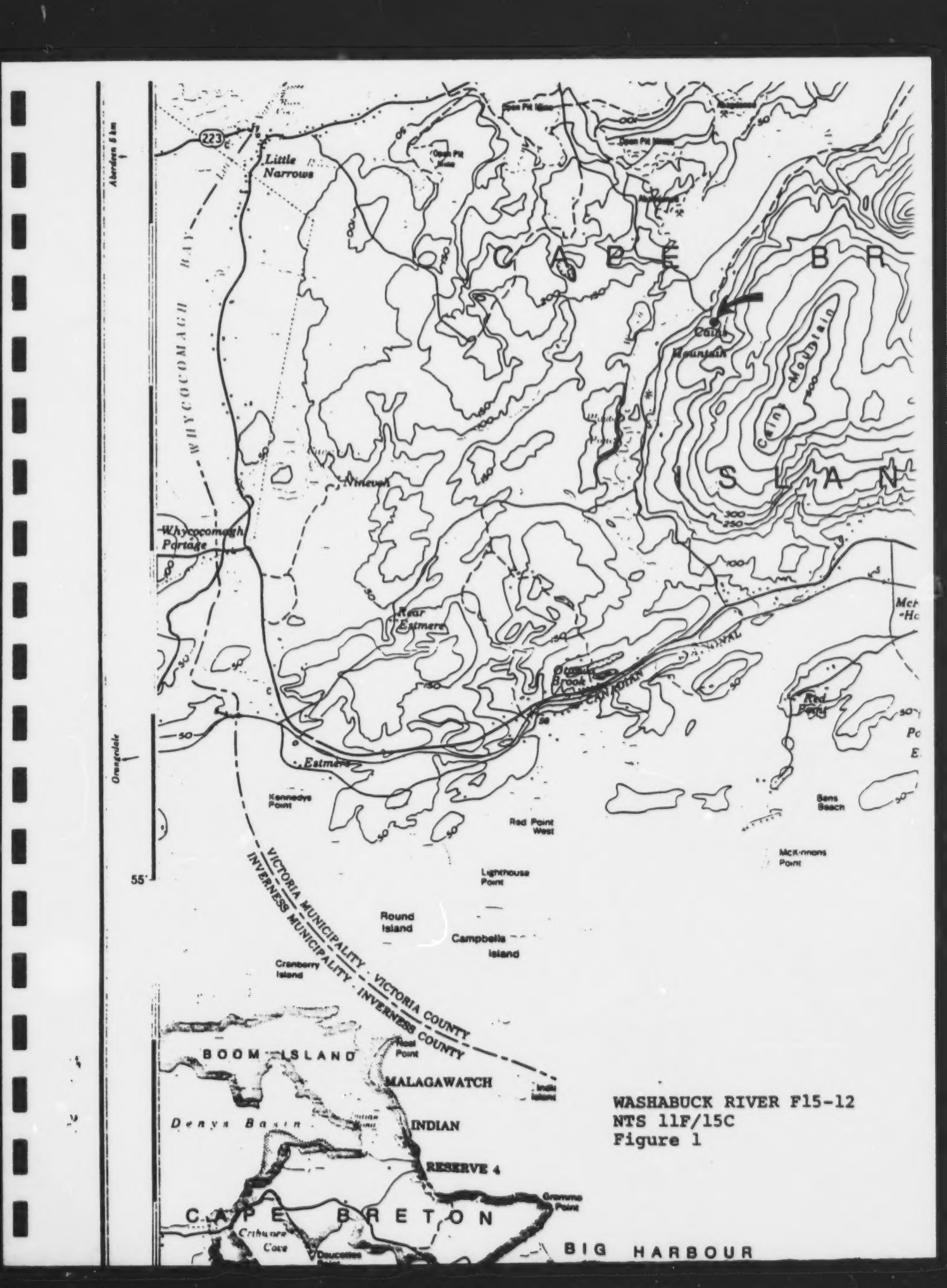
The limestone contains sparsely disseminated fine sulphide (pyrite, chalcopyrite) crystals cut by small, irregular, widely scattered calcite veinlets. Armitage found a trace of galena in a calcite veinlet. No mineralization was noted in grit/pebble conglomerate.

TABLE 1

WASHABUCK RIVER SAMPLES

88-WR-7401	fetid limestone
88-WR-7402	fetid limestone

Two samples were sent to Bondar Clegg Laboratory, Ottawa, for a combination of Direct Irradiation/INAA Au + 33 and Atomic Absorption analyses for a total of 36 elements. The results of the analyses are given in Table 2. The samples are anomalous for Zn and one is weakly anomalous for Pb.



WASHABUCK RIVER F15-12
NTS 11F/15C
Figure 1

TABLE 2
WASHPBUCK RIVER ANALYSES

WASHPBUCK RIVER Au + 33

80-AP	Mesh	%	Cr	Fe%	Co	Ni	Zr	Mo	Sb	Ag	Sn	Zr	Pb	Ba	Cd	As
7481	0.17	2.9	39	0.7	16	<20	430	16	<5	3.9	24	<200	<1	<2	15	<1
7482	0.15	2.1	35	0.5	8	<20	880	12	<5	3.9	16	<200	1	<2	15	<1

WASHPBUCK RIVER ATOMIC ABSORPTION

80-AP	Cu	Zn	Ag	Pb	Au ppb
7481	19	481	<0.1	38	<5
7482	37	882	<0.1	89	<5

[redacted]

WASHABUCK

OCCURRENCE: WASHABUCK F15-13 (Weakly disseminated copper)
Reported as a Pb, Zn occurrence but not confirmed.

LOCATION: 5091980 N 660450 E NTS 11F/15C

ACCESS:

Located 250 m east of the Washabuck River along a westerly flowing brook, 200 m southeast of a gravel quarry.

REFERENCES:

NSDME AR 11F/15C 07-Q-09 (04)

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

There are good rock exposures in the stream bed. Buff limestone and cobble/pebble conglomerate form a dip slope in the stream channel. The section appears to be at the Horton - Windsor contact.

Mineralization:

Sparsely disseminated pyrite and chalcopyrite occur in fetid limestone. Table 1 gives a brief description of samples sent to Bondar Clegg for a combination of Direct Irradiation/INAA Au + 33 and Atomic Absorption analyses. Table 2 lists the results of these analyses.

TABLE 1

WASHABUCK SAMPLES

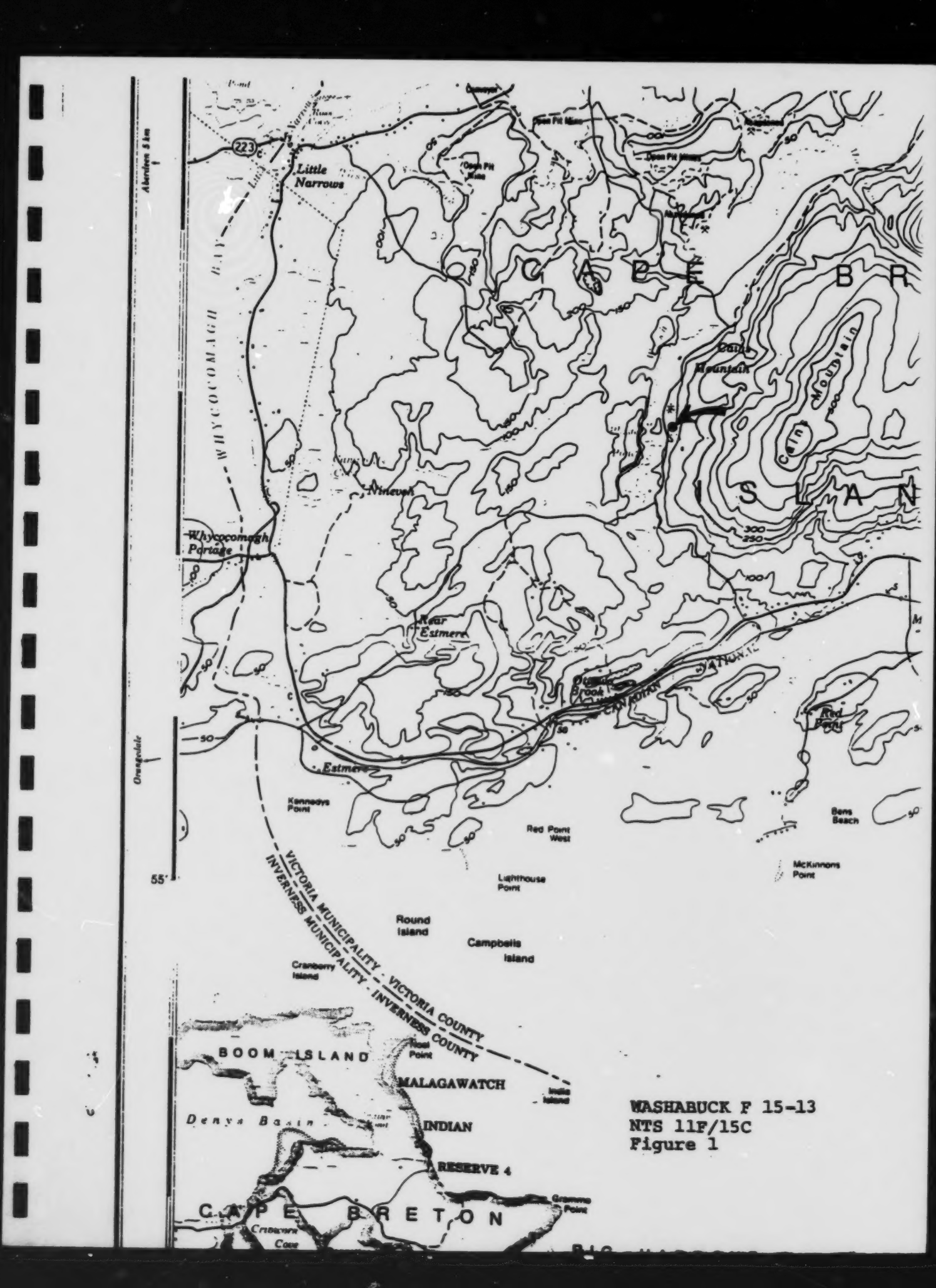
88 WB 7301 South bank of stream, fetid limestone, chip samples.

88 WB 7302 Outcrop at the bottom of the cascade at the end of the outcrop, fetid limestone, chip samples.

88 WB 7303 Conglomerate, a composite sample from the length of the exposure.

SIGNIFICANCE:

Although the samples showed very weakly disseminated pyrite and a trace of chalcopyrite, copper was not evident in analyses. Sample 7301 gave a weakly anomalous value of 21 ppb Au. None of these values are of occurrence or metallogenic significance.



WASHABUCK F 15-13
NTS 11F/15C
Figure 1

T4

TABLE 2
WASHABUCK ANALYSES

WASHABUCK AU + AG

88-18																		
7341	0.36A+	1.36		0.04				7.12										
7342	0.38	1.7	.007	0.04	.020	.002	.01	.08	.005	.14	.03	.01	.08	.02	.002	.005	.01	.008

WASHABUCK ATOMIC ABSORPTION

88-18	AU	AG				
7341	132	135	<0.2	43	PPM	
7342	13	92	<0.1	19		49

[redacted]

FRENCH ROAD

OCCURRENCE: FRENCH ROAD F16-05 (Copper, cobalt, bismuth, zinc, arsenic, lead, tin, silver)

LOCATION: 5087640 N 716480 E NTS 11F/16D
Additional occurrences on Blue Mountain, 2 km to NE.

ACCESS:

From French Road gravel pit drive 0.7 km west to small access road leading north, starting through marshy area and crossing a small creek. Follow the small access road north for 900 m to point where it branches. Take the northwest (left) branch for an additional 500 m to shaft and stripped area.

REFERENCES:

Chatterjee, A. K., 1977. Mineral Resource Division, Report of Activities, 1976. NSDME Report 77-1, p. 71-80.

Macdonald, A. S., 1982. Preliminary report, metallogenic studies southeastern Cape Breton Island. NSDME OFR 527, not paged.

Macdonald, A. S. and Scott, P., 1980. Blue Mountain Area, Report of Activities, 1979. NSDME Report 80-1, p. 77-79.

NSDME AR 11F/16D CL 6 (01,03)
11F/16D 13-C-40 (01 to 04)
11F/16D 07-C-40 (01 to 12)

Weeks, L. J., 1954. Southeast Cape Breton Island, Nova Scotia, Geological Survey of Canada, Memoir 277, 112 p.

PREVIOUS WORK DONE:

1876 Float discovered on Angus McDonald farm.

1879 Shaft sunk.

1952 Area prospected and mapped by Hollinger Gold Mines.

1953-56 Geophysical, (magnetic) and geochemical (soil) surveys, diamond-drilling by Mindamar Mines.

1968-69 Geochemical (soil) survey, diamond-drilling by Dome Exploration.

1976 Chatterjee, petrographic and X-ray study.

1976-79 Geophysical, (EM, VLF, magnetic) and geochemical (soil) surveys, diamond-drilling by St. Joseph Exploration.

1981 Geochemical, (soil) survey, diamond-drilling by French Road Exploration.

GEOLOGY:

Excellent summaries of the geology of the area are given by Chatterjee (1977) and by Macdonald and Scott (1979). Macdonald, 1982, describe the geology and metallogeny of southeastern Cape Breton Island. The geology and geochemistry of the Blue Mountain (French Road) occurrence is included in his study (Macdonald, 1982). Assessment reports prepared by McCullough and Sangster for St. Joseph Exploration and by French Road Exploration are also major

sources of information for this property and the additional occurrences to the northeast. Reference should be made to all these reports.

The mineralization is in a contact metamorphic aureole (although plutonic rock is not in evidence) in metasediments, assigned by Weeks (1954), to the Middle Cambrian Trout Brook Formation. Chatterjee (1976) describes the country rock as metamorphosed, altered basic volcanic rock of Middle Cambrian age interbedded with shale of the Trout Brook Formation. These rocks are cordierite-anthophyllite-uvarovite greenstone and a breccia of schorl.

Although Chatterjee (1976) did not undertake a detailed study of sulphide mineralization he notes that magnetite and ilmenite are associated with massive sulphides which include chalcopyrite, pyrite, pyrrhotite and bismuthinite, with rare sphalerite and galena.

Reference should be made to recent work by A. S. Macdonald, (1982), Part 1, which is a detailed study of the Marion Bridge area. The Middle Cambrian rocks are contact metamorphosed, (metasomatized), to biotite hornfels, spotted cordierite - biotite hornfels with minor medium grained biotite - quartz fels and calc-silicate fels.

Mineralization: (Macdonald, 1982)
Apart from a few occurrences of disseminated pyrite in trace or small amounts, the only significant mineralization is in a metamorphic aureole in the Blue Mountain - French Road area. Mineralization is polymetalic in character and appears to occur in two main elemental associations.

(i) Fe-Cu-Co-Bi-Ag-Sn(?) in several habits in calc-silicate fels and in calc-silicate knots in hornfels.

(ii) Fe-Zn-Pb in hornfels and slaty argillite, in quartz veinlets and stockworks, in joint surfaces, and as disseminations along bedding and in cleavage.

Assays of diamond-drill core gave significant cobalt and silver values.

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

Because the results of previous work on this occurrence are so thorough and easily available, this occurrence was examined merely for interest. However, three samples were analysed at Bondar Clegg, Ottawa, for a total of 37 elements by a combination of Direct Irradiation/INAA, Atomic Absorption, and conventional assay. Table 1 is a brief description of these samples. Table 2 list the results of the analyses.

TABLE 1

FRENCH ROAD SAMPLES

88 FR 5001	Skarn; mineralized by pyrite, pyrrhotite(?), chalcopyrite, bismuthinite, and erythrite. Sphalerite and galena were not obvious but were suspected.
88 FR 5002	As for 5001
88 FR 5003	Wall rock, hornfels and marble.

Results of analyses:
Samples and anomalous metal values are listed on Table 3. The three sets of

analyses of selected samples from the shaft dump gave significant values for all the metals previously reported. Some of these had remained undetected until late in the exploration history, so illustrating the value of early analyses for a broad range of elements.

TABLE 3
FRENCH ROAD ANOMALOUS VALUES

FRENCH ROAD Au + 33

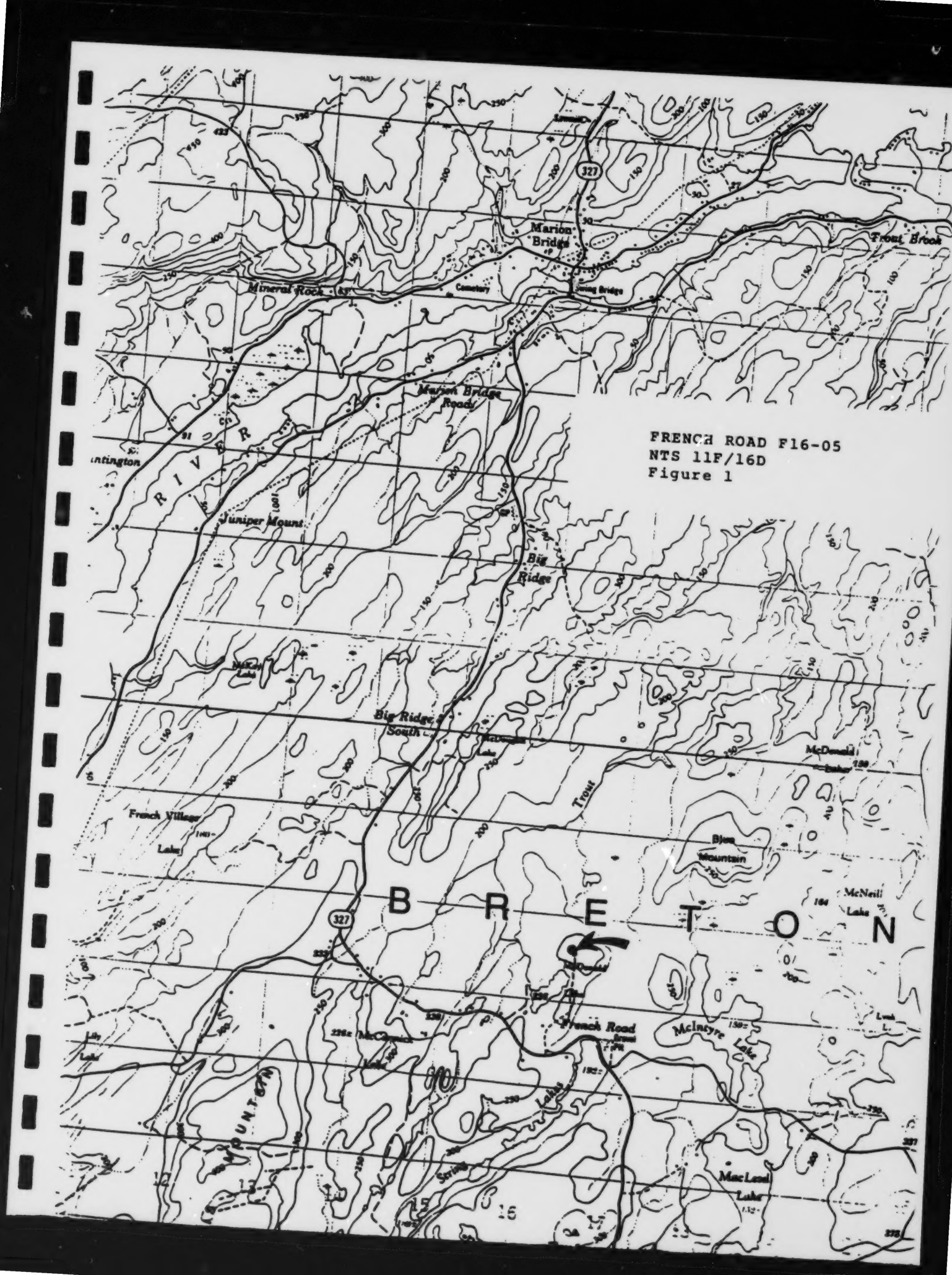
88-FR	Fe%	Co	Ni	Zn	As	Mo	Ag	Sn
5001	16	798	45	1400	791	5	27	220
5002	10	4770	96	<100	4600	16	<8	370
5003	6.5	39	30	<100	146	1	<2	<100

FRENCH ROAD ATOMIC ABSORPTION

88-FR	Cu	Zn	Ag	Pb	Bi
5001	17300	1029	27.6	51	1495
5002	556	92	2.8	140	7100
5003	103	78	0.4	5	247

FRENCH ROAD ASSAYS %

88-FR	Cu	Zn	Co
5001	1.84	0.13	0.05
5002	0.05	0.02	0.35
5003	0.01	0.01	<0.01


FRENCH ROAD F16-05
NTS 11F/16D
Figure 1
Marion Bridge
Mineral Rock
Marion Bridge Road
Juniper Mount
Big Ridge
Big Ridge South
French Village
Lake
Trout
Bluff Mountain
McDonald Lake
McNeill Lake
McIntyre Lake
French Road
MacLeod Lake
Frost Brook
RIVER
BRETON
327
16

HISTORY OF PRODUCTION

REFERENCES

(+)Chatterjee, A.K.; Massive Sulphide Mineralisation Near Blue Mountain, Cape Breton County, in Nova Scotia Department of Mines Report 77-1, Report of Activities 1976, pp. 71-80, 1977.

MAP REFERENCES

*Map 11 F/16, Mira, (Topo.), Sc. 1:50,000.

Map 1056 A, Mira, (Geol.), Sc. 1"=1 mile, G.S.C. 1958.

REMARKS

The location was taken from a summary by Chatterjee in N.S. Report 77-1.

Comp./Rev. By	JL						
Date	9-79						

HISTORY OF PRODUCTION

Shipping point — Distance from mine

Material shipped — Carrier

Destination

MAP REFERENCES

1026 A, Southeastern Cape Breton Island, (Geol.), Sc. 1:2 miles Accomp. Mem. 277.

1056 A, Mira, (Geol.), Sc. 1:1 mile.

234 G, Mira, (Aeromagnetic), Sc. 1:1 mile.

11 F/16, Mira, (Topo.), Sc. 1:50,000.

REMARKS

Weeks, (1954, p. 103), thinks the property worthy of some exploration.

REFERENCES

Douglas, G.V.: Mineral Deposits in Gabarus Area; Annual Report 1943, Dept. of Mines, N.S., 1944.

Weeks, L.J.: Southeast Cape Breton Island, Nova Scotia; Mem. 277, Geol. Surv. of Canada, 1954.

Ells, R.W.: Bulletin on the Ores of Copper in the Provinces of Nova Scotia, New Brunswick and Quebec; Pub. No. 882, Geol. Surv. of Canada, 1904.

Annual Report, 1952, p. 42, Dept. of Mines, N.S.

MAR - 1960

PRODUCT COPPER	PROVINCE OR TERRITORY Nova Scotia	N.T.S. AREA 11 F/16	REF. CU 3

NAME OF PROPERTY McINTYRE LAKE

OBJECT LOCATED – occurrence.

UNCERTAINTY IN METRES 1,000. Lat. 45°54'54" Long. 60°11'10"

Mining Division — District

County Cape Breton — Township or Parish

Lot — Concession or Range

Sec — Tp. — R.

OWNER OR OPERATOR

DESCRIPTION OF DEPOSIT

The area is underlain by middle Cambrian Trout Brook Formation volcanic and sedimentary rocks. The basic volcanic rocks have been metamorphosed to cordierite-anthophyllite rock which contains massive fine to medium-grained copper and bismuth bearing sulphides consisting of pyrite, chalcopyrite, pyrrhotite and bismuthinite. Other metallic minerals are magnetite, ilmenite and rare sphalerite and galena. In some selected samples bismuthinite composed up to 40% of the rock. The sulphides occur as bands, veinlets and disseminations. Also present is a fragmental shorl rock with which is associated chalcopyrite and bismuthinite.

Associated minerals or products bismuth

HISTORY OF EXPLORATION AND DEVELOPMENT

The occurrence is about ½ mile south of Blue Mountain.

Mineral Policy Sector, Department of Energy, Mines and Resources, Ottawa

MR-126

PRODUCT COPPER	PROVINCE Nova Scotia	N.T.S. AREA 11 F/16	REF. Cu 2

NAME OF PROPERTY MacDonald Copper Prospect

LOCATION Lat. 45°54'45" Long. 60°12'30"

Mining Division District

County Cape Breton Township or Parish

Lot Concession or Range

Sec. Tp. R.

OWNER OR OPERATOR AND ADDRESS

DESCRIPTION OF DEPOSIT

Ore or substance

Character of Deposit - Copper sulphides occur replacing silicified black shale of the Trout Brook formation. As there are no outcrops in the immediate vicinity, and as the shaft is flooded to within 23 feet of the collar, no mineralization can be seen in place, little or nothing is, therefore, known of the extent of the deposit.

Country Rock

Associated Minerals of value

HISTORY OF EXPLORATION AND DEVELOPMENT

Copper bearing float was discovered here about 1876. In 1879 a shaft was started, and was deepened in 1888 to a depth reported to be 40 feet. According to Weeks, (1954, p. 103), the workings are believed to total about 100 feet.

A sample taken from the dump by Douglas in 1943, assayed 2.1% Copper, with a trace of gold.

In 1952, some prospecting and diamond drilling were carried out by Dr. T.J. Khattar, and a geological survey of the area made by a field party from Hollinger Gold Mines. The diamond drilling consisted of 3 holes (293 feet), only one of which, No. 1839, intersected copper mineralization - see drill logs in A.R. 1952, p. 57. This consisted of some chalcopyrite in a 20 foot section of greenstone, intersected at a depth of 101 feet.

501271

T9

TABLE 2
FRENCH ROAD RESRVS

FRENCH ROAD A + 33

FRENCH ROAD ATOMIC ABSORPTION

FRENCH ROAD RESRVS K

[redacted]

FRENCH VILLAGE BROOK

OCCURRENCE: FRENCH VILLAGE BROOK · F16-38 (Zinc, arsenic)

LOCATION: 5087380 N 711140 E NTS 11F/16D

ACCESS:

From Glen Currie on the east side of Mira River, drive north 1.25 km to French Village Brook leading from French Village Lake. Walk upstream about 250 m to point where stream branches take north (left) branch for an additional 675 m (925 m total) to small siliceous stratiform arsenopyrite/ sphalerite occurrence on south (right) side of stream bank (Fig. 2).

REFERENCES:

Keppie, J. D., 1979. Geological Map of the Province of Nova Scotia, scale 1 to 500 000.

NSDME 11F/16 D CL 6 (01)
An obscure reference to this small occurrence was found by G. DeMont in this file dealing mainly with Mindamar.

Weeks, L. J., Cameron, H. L., Goranson, E. A. and Guernsey, T. D., 1953. Southeastern Cape Breton Island. Geological Survey of Canada, Map 1026A, scale 1" to 2 miles.

GEOLOGY:

The French Village Brook occurrence is in a Middle Cambrian siltstone-shale sequence which Weeks et al. (1953) first mapped as distinct from the Bourinot Group. Subsequently Keppie (1979) included these rocks with the Bourinot Group volcanic/sedimentary sequence.

RESULTS OF 1988 FIELD CHECK: (Northcote and DeMont)

Local Geology:
The sequence is predominantly sedimentary metasiltstone with lesser felsic tuff which DeMont found in the southeast branch of French Village Brook.

Bedding/jointing 030°/50° SE

Petrographic examination of polished thin sections show the metasiltstone is composed of fine silt-sized quartz grains in a sericitic matrix with scattered grains of bladed muscovite. The felsic tuff is pink and cream laminated, composed of fine granular, stubby, sericitic plagioclase crystal fragments with indistinct outlines and scattered coarser subhedral twinned grains and very minor amounts of quartz crystal fragments. The matrix is sericitic with widely scattered sericitic crackle brecciation infilling.

Mineralization:
There is a narrow mineralized zone in metasediments, apparently stratabound, approximately 30 cm wide of 5+% irregularly distributed sulphide mineralization, associated with quartz veinlet silicification with less intense silicification and sulphide mineralization extending an additional 20 cm into country rock on either side. The sulphide mineralization in this zone is predominantly arsenopyrite and sphalerite with lesser pyrite. Traces of galena and chalcopyrite were observed in polished thin sections. Arsenopyrite is disseminated and forms pods throughout the rock matrix and is also associated with the quartz veinlets. Other sulphides are predominantly in, or in association with, quartz veinlets.

The felsic tuff contains weak disseminated pyrite.

Table 1 gives a brief description of the samples sent for chemical analyses.

TABLE 1

FRENCH VILLAGE BROOK SAMPLES

Sample No.	Lithology	Alteration	Mineralization	Type
88-FVB-9201	Metasediment	Quartz veinlets, sericite	Arsenopyrite, sphalerite, pyrite (marcasite) chalcopyrite, galena (?) blebs in pyrite	Chip
88-FVB-9202	Metasediment	As for 9201	As for 9201	Chip
88-FVB-9203	Felsic tuff (laminated)	Sericite	Diss pyrite	Selected
88-FVB-9204	Felsic tuff & metasediment	Sericite	Pyrite	Selected

ANALYSES: (Northcote and DeMont)

Four samples were sent for Direct Irradiation/INAA Au + 33 and Atomic Absorption analyses for 39 elements. The results of these analyses are listed on Table 2 and a summary of anomalous values on Table 3.

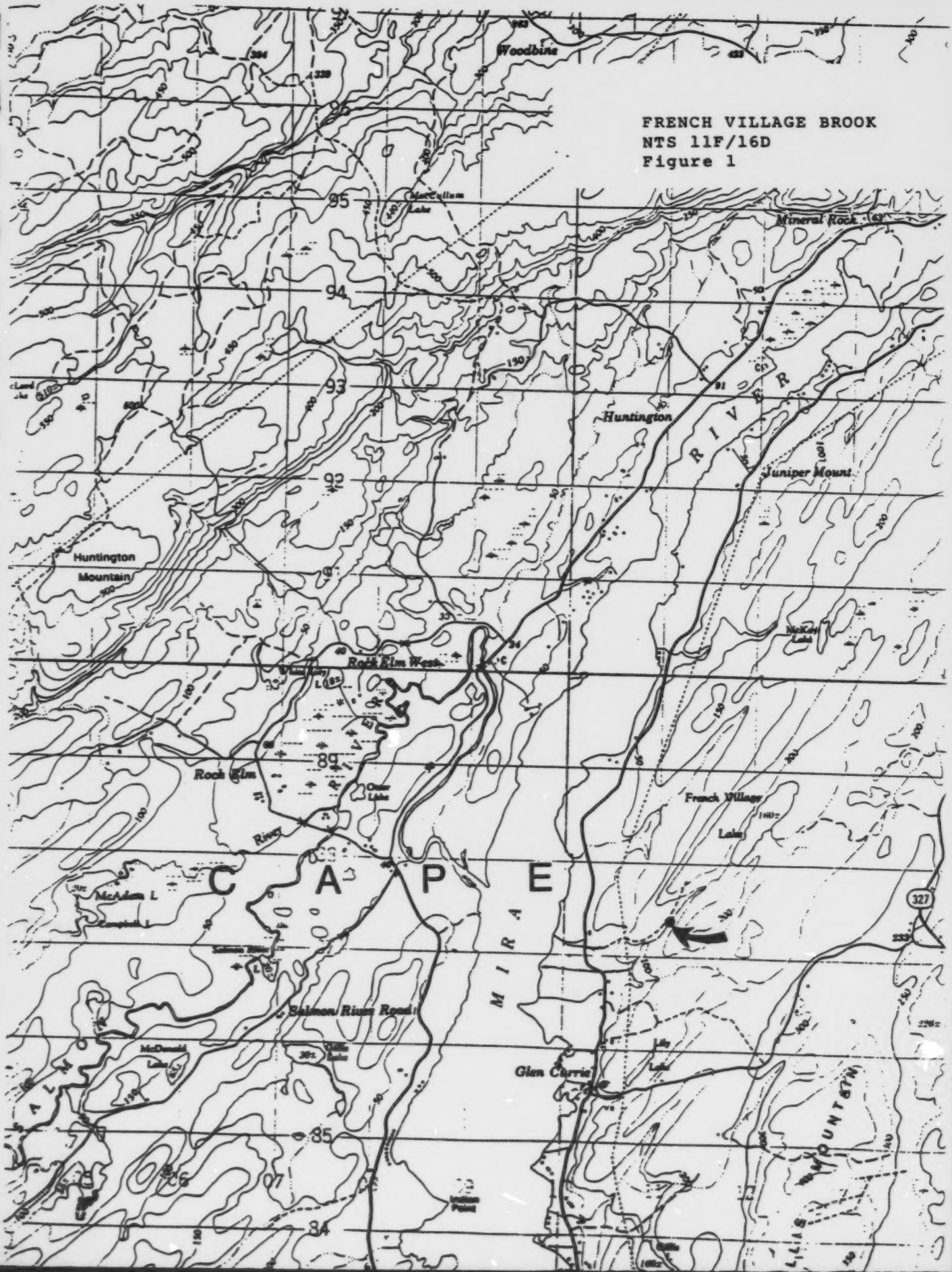
TABLE 3

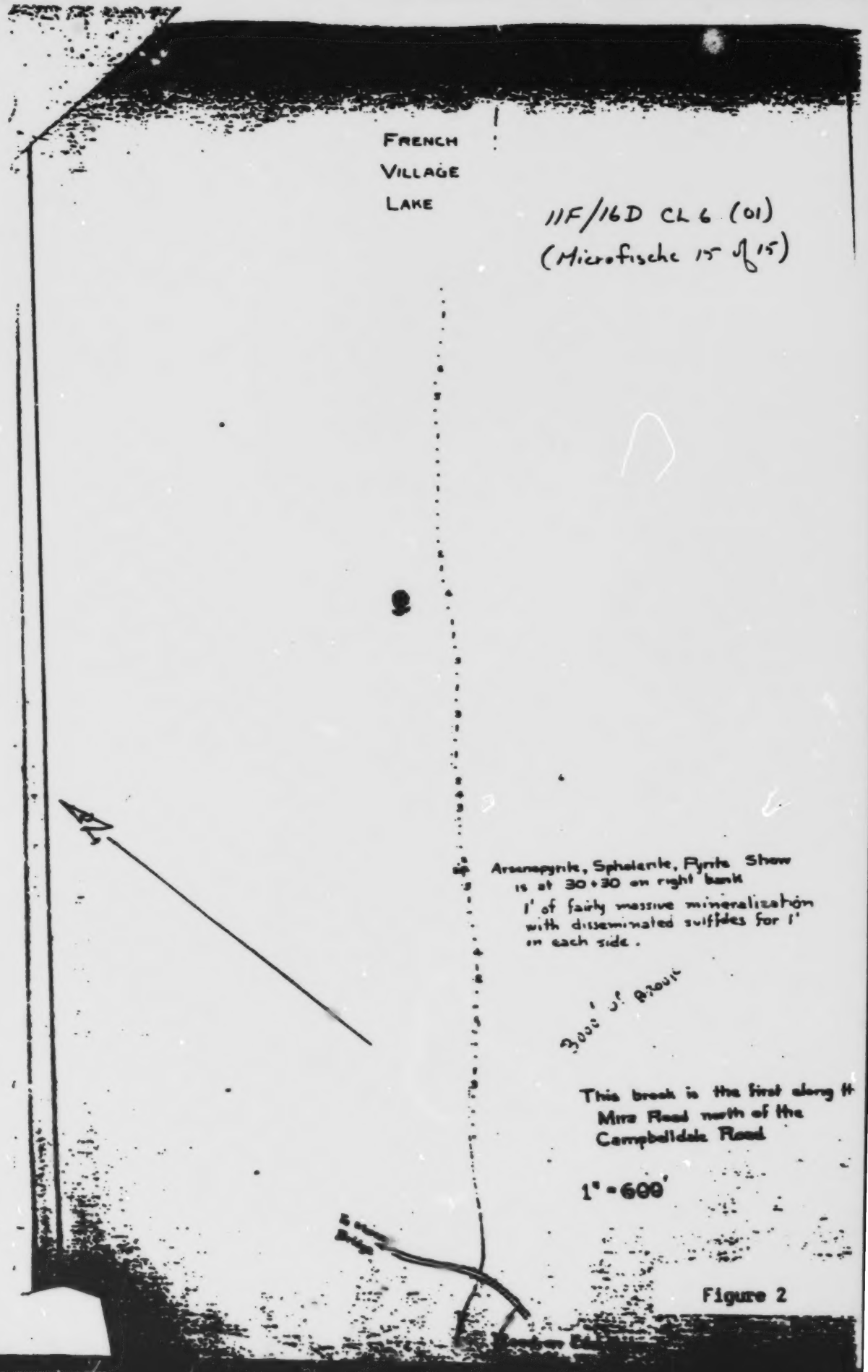
FRENCH VILLAGE BROOK ANOMALOUS VALUES

Sample	Zn	Cd	As	Au ppb
9201	817	--	8240	22
9202	9660	40 (35.2)	7230	16
9203	--	--	--	--
9204	--	--	--	--

French Village Brook occurrence is of metallogenic significance for Zn and As, and gives slightly anomalous values for Au and Cd.

The presence of interbedded(?) felsic volcanics, plutons (such as the Gillis Mountain Pluton), the French Road contact metasomatic, and French Village Brook occurrences make the Bourinot Group a favourable environment for mineralization.


FRENCH VILLAGE BROOK
NTS 11F/16D
Figure 1
Woodbine
Mineral Rock
Huntington
Juniper Mount
RIVER
Huntington Mountain
Rock Elm West
Rock Elm
French Village
Lakes
CAPE
MIRA
Salmon River Road
Glen Currie
95
94
93
92
89
85
84
327


FRENCH
VILLAGE
LAKE
Arsenopyrite, Sphalerite, Pyrite Show is at 30+30 on right bank
1' of fairly massive mineralization with disseminated sulfides for 1' on each side.
This brook is the first along the Mine Road north of the Campbelldale Road
1" = 600'

11F/16D CL 6 (01)
(Microfiche 15 of 15)

Figure 2

TII

TABLE 2
FRENCH VILLAGE BROOK ANALYSES

FRENCH VILLAGE BROOK Mg +

FRENCH VILLAGE BROOK ATOMIC ABSORPTION

[redacted]

[redacted]

BARRACHOIS HARBOUR

OCCURRENCE: **BARRACHOIS HARBOUR: K01-09 C**
Reported 12 inch gold-bearing quarz vein.

LOCATION: **5113780 N** **699530 E** **NTS 11K/01**

ACCESS:

The indicated location is on the nose leading westerly from radio tower between Highway 223 and highway along St. Andrews Channel at Barrachois Harbour.

The occurrence is said to be a 12" gold-bearing quartz vein which, when assayed by Nicholson in 1938, gave a return of $1.60 combined Au and Ag.

REFERENCE:

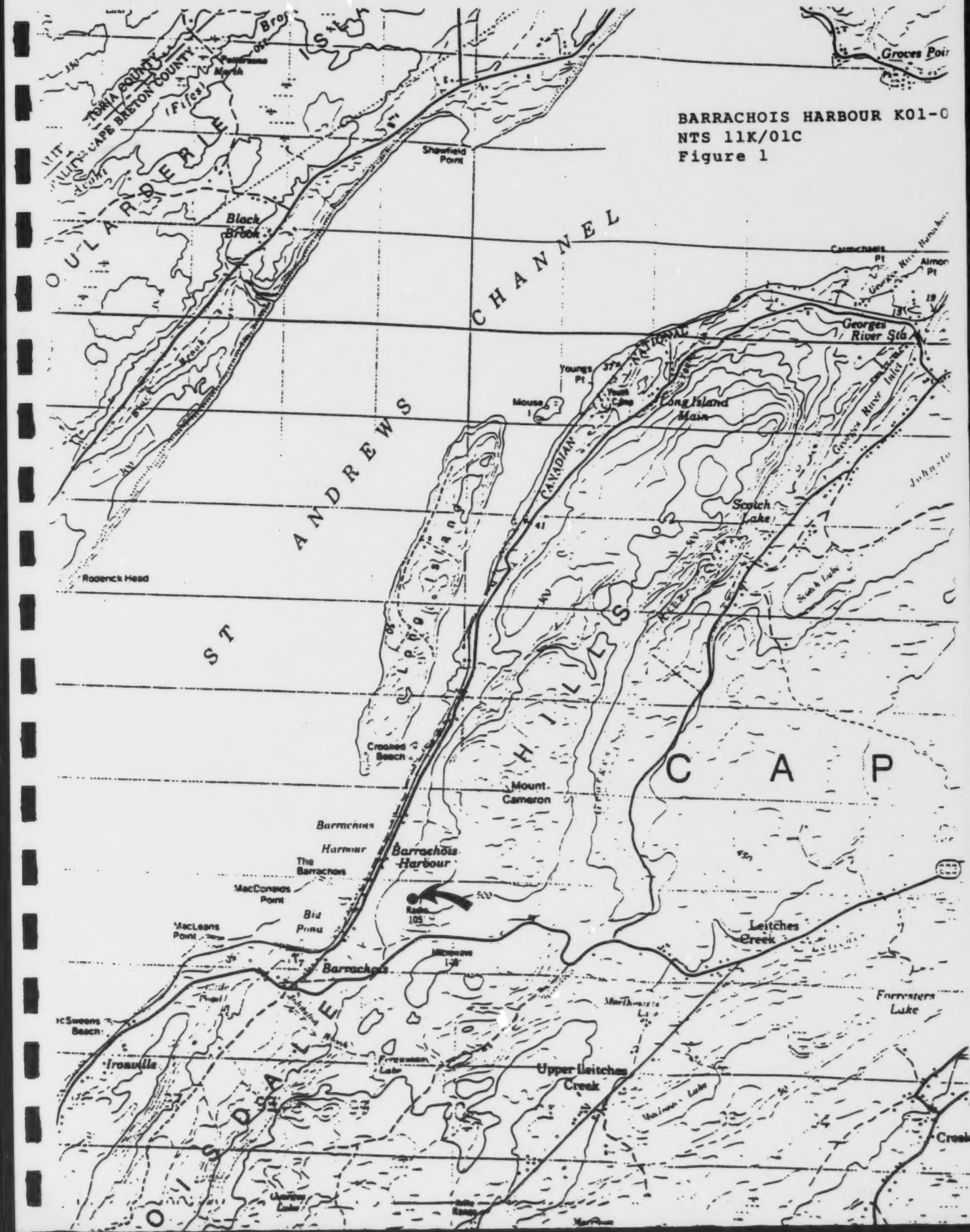
Barr, S. M. and Setter J. R. D., 1984. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island. NSDME Paper 84-1, 75 p. and geological map scale 1:100 000.

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

Approximately 2 days were spent attempting to locate this occurrence. We scoured the hillside above and below the late Hadrynian-Cambrian syenogranite-Georges River metasediment contact.

Working from radio tower downwards, there are extensive outcrop areas of barren "granite" on the west-facing shoulder of the ridge with no evidence of quartz veining. However, fence rows of rock in the bush contain some narrow, discontinuous quartz veinlets

Working from the woodlot area near lower half of nose upwards: Approximately 250 m straight up the hill from the end of the road there is an old hand-dug pit rimmed by granite and microgranite debris, flanked on the downslope side by a spine of granitic rock. The pit contained no quartz debris and there was no quartz in pit area or anywhere on the hillside. The occurrence may be mislocated. Sample 88 BH 5801 of granitic rock was taken for analyses. The results of the analyses on Table 2 contain no anomalous values.


BARRACHOIS HARBOUR K01-0
NTS 11K/01C
Figure 1
Groves Point
Shoefield Point
Black Brook
Cumchasis Pt
Almon Pt
Georges River Sta
Youngs Pt
Mouse I
Long Island Main
Scotch Lake
Roderick Head
Crooked Beach
Mount Cameron
Barrachois Harbour
The Barrachois
MacConnells Point
Big Point
MacLeans Point
Barrachois
Leitches Creek
Forresters Lake
Upper Leitches Creek
Irouville
ST ANDREWS CHANNEL
CAP

T16

TABLE 2
BARRACHOIS HARBOUR ANALYSES

BARRACHOIS HBR	AU * 35																																		
4-GM	MAX	SC	CR	FeX	CO	NI	<20	<100	1.2%	45	87	118	256	71	42	05	<100	0.1	<10	1.4	490	10	05	3	21	<0.5	YB	0.5	HF	TA	<1	<50	AU	PPB	TH	U	WT
3001	3.34	3	100	1.1	<3	<20								<1	<2																		<2	13	3.4	34.34

BARRACHOIS HBR	ATOMIC ABSORPTION						
1-GM	CU	ZN	AG	PB	BI	AU	MOD
3001	9	13	<0.1	<2	<1		<3

CURRIE MINE

OCCURRENCE: CURRIE MINE K01-10 (Iron)

LOCATION: 5101360 N 696480 E NTS 11K/01 B

ACCESS:

At McAdams Lake Village, approximately 3 km northwest of McAdams Lake, drive to the end of Dougald Road and from there go 110 m bearing 215°. The main mine trench is 30 m long by 5 m wide, bearing 035° with a hematite dump. A number of smaller exploratory trenches were excavated to the east and northeast of the mine trench.

REFERENCES:

Barr, S. M. and Setter, J. R. D., 1986. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p. and geological map scale 1:100 000.

Lindeman, E. and Bolton, L. L., 1917. In Iron Occurrences in Canada, Vol. 2. Mines Branch, p. 198.

Woodman, J. E., 1909. Report on the iron ore deposits of N.S. Canada Department of Mines, Report No 20, p. 217-220.

Wright, J. D., 1975. Iron deposits of Nova Scotia. NSDME Economic Geology Series 75-1, p. 121-127.

PREVIOUS WORK:

The mine was operating in 1874 when several hundred tons of ore were reported to have been mined. Exploration was subsequently carried out in search of additional reserves; this work included diamond-drilling. All work seems to have ceased prior to 1920.

Analyses: (Lindeman and Bolton, 1917, p. 198)

Iron	56.79%
Insoluble	12.75%
Phosphorous	0.008%
Sulphur	0.022%

GEOLOGY:

The Currie Mine is in the late Precambrian Georges River Group, just north of the contact with lower to middle Devonian McAdam Lake Formation (Barr and Setter, 1986). The Georges River Group consists of interbedded quartzite, marble and minor slate (Barr and Setter, 1986). The hematite is in crystalline limestone, attitude 070°/V or steeply south. Pegmatitic granite is reported to intrude the limestone in several places.

The hematite body is said to have been 5 to 9 feet wide at the surface but pinched out at a depth of 12 feet. In 1917 Lindeman reported only a few narrow veins of hematite in limestone at the west end of the main pit, ranging in width from 2 to 8 inches (Lindeman and Bolton, 1917, p. 198).

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

The waterfilled mine trench is flanked on the northwest by a limestone ridge and appears to be in a structure trending approximately 035°. Hematite is found on the dump at the mine trench site and a sample was sent to Bondar Clegg, Ottawa, for chemical analyses.

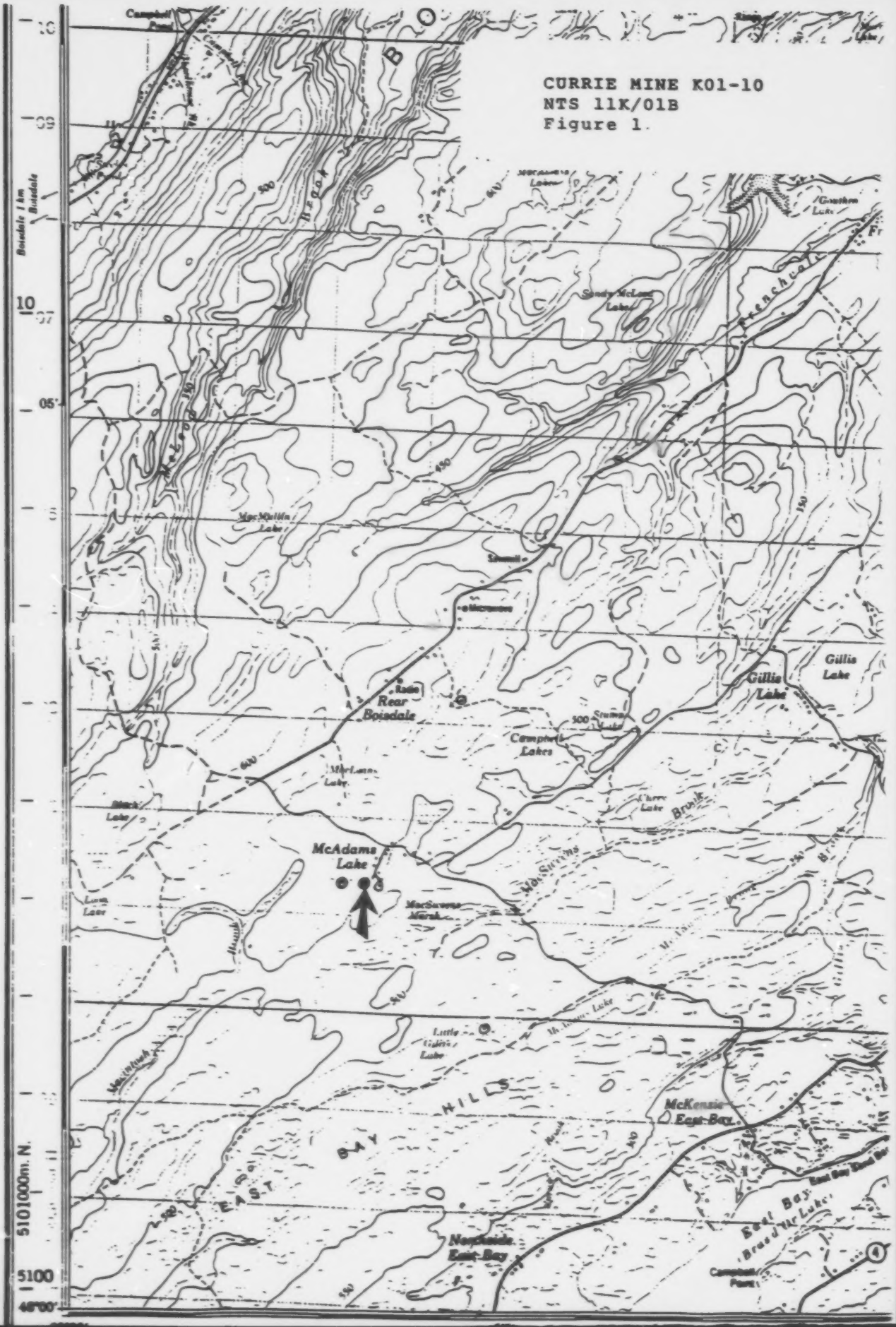
TABLE 1

CURRIE MINE SAMPLE

88-CM-6701 Hematitic limestone from mine dump.

The sample was analyzed by a combination of Direct Irradiation/INAA and Atomic Absorption analyses for 36 elements. The results of the analyses are listed on Table 2. Although the sample is of low Fe content no other elements of economic significance are evident. Th and Cr are slightly anomalous. It is suggested that additional samples of higher iron content be analyzed for a broader range of elements.

CURRIE MINE K01-10
NTS 11K/01B
Figure 1.



T3

TABLE 2
CURRIE MINE ANALYSES

CURRIE MINE Au + 33

88-CM	Mask	Sc	Cr	FeX	Co	Ni	Zn	As	Se	Br	Rb	Zr	Mo	Ag	Cd	Sn	Sb
6781	0.13	16	388	5.2	27	<20	<100	20	<5	<2	33	<200	4	<2	<5	<100	0.9

CURRIE MINE ATOMIC ABSORPTION

88-CM	Cu	Zn	Ag	Pb	Au	Hab
6781	68	43	0.3	99		<5

[redacted] [redacted] [redacted] [redacted] [redacted]

Sb	Ta	Cs	Ba	La	Ce	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Ir	Au	Pb	Th	U	Hf
0.9	<10	5.1	226	44	77	5.1	2	<0.5	<2	<0.2	5	0.7	2	<56		5	11.1	3.2	43.87

INGRAHAM / McALLISTER HEMATITE

OCCURRENCE: INGRAHAM / McALLISTER K01-12 (Iron)

LOCATION: 5112340 N 6968960 E NTS 11K/01C

ACCESS:

From Barrachois Harbour drive west on Highway 223 over bridge between Big and Little Pond, then southwest along St. Andrews Channel to Ironville. Follow old access roads up hillside south of Ironville through a series of trenches and shafts (Figs. 1 to 4). A tunnel was started from the south-facing slope south of the other workings but was abandoned about 300 m short of its supposed intersection with the ore zone.

REFERENCES:

Barr, S. M. and Setter, J. R. D., 1986. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p., and geological map, scale 1:100 000.

Goudge, M. G., 1938. *In* NSDME Annual Report, p. 145-151.

Lindeman, E. and Bolton, L. L., 1917. *In* Iron Occurrences in Canada, Vol. 2 Mines Branch, p. 196-197.

NSDME AR 11K/01C 25-C-02 (00 to 07).

Piers, H., 1906. *In* Report on Mines of Nova Scotia. E. Gilpin, Nova Scotia Department of Mines, p. 30.

Woodman, J. E., 1909. Report on iron ore deposits of N.S. Canada Department of Mines, Report No. 20, p. 217-220.

Wright, J. D., 1975. Iron Deposits of Nova Scotia. NSDME Economic Geology Series 75-1, p. 120-121.

GEOLOGY:

The Ingraham hematite workings (Figs. 3 and 4) are in the Hadrynian George River Group (Barr and Setter, 1986) which here consist of bedded slate and limestone. Diabase was encountered in some of the workings.

Mineralization:

Ore consists of earthy, massive, and specularite hematite which is in irregular fractures and cavities along a slate-limestone contact. Small masses of compact rich hematite are commonly embedded in country rock but most of the ore is a mixture of hematite, ochreous material and slate (Lindeman and Bolton, 1917). There appear to be no distinct walls; hematite impregnates country rock (Woodman, 1909). The tunnel driven some 60 feet in 1906 showed the ore pinching to 1 ft (Woodman, 1909).

PREVIOUS WORK:

Workings: (Figs. 3 and 4). There are several shafts, excavations and pits on the property but shafts 1 and 2 are the only ones that have produced ore. Shaft 1 was 56 ft deep and showed the orebody with a steep west dip. Shaft 2 was 25 ft deep with a drift 160 ft long leading from it.

Previous Analyses:

1906 Piers

Average 65% Fe and as high as 69% Fe

Fe_2O_3	48.70%
Al and Mn oxide	0.60%
Lime	0.11%
Magnesium	0.10%
Sulphur	0.01%
Phosphoric acid	0.04%
Siliceous matter	2.12%
Fe	67.30%

1909 Woodman

Sample 171 Ore from No. 1 pit, from across the north face of the workings, excluding the rock portion

Sample 199 Ore from a dump, recent work (1909)

Sample B-1 Average of all shipments made to Sydney during the working of No. 1 pit

Sample B-2 Ore from the bottom of pit No. 1; Nova Scotia Steel and Coal Co.

Sample B-10 Average of No. 2 pit, March, 1907; Nova Scotia Steel and Coal Co.

Sample 173 General sample from the central 6 feet of trench No. 2

Samples 177 and 178 are analyses of samples from other openings and test pits on the property.

	Fe	SiO_2	Al_2O_3	CaO	MgO	P	S
171	40.52	--	--	--	--	--	--
199	48.70	4.62	1.90	9.25	0.68	0.065	0.087
B-1	44.43	16.10	--	--	--	--	--
B-2	49.50	14.56	--	4.07	--	--	--
B-10	33.20	20.00	--	15.00	--	--	--
173	38.29	--	--	--	--	--	--
177	43.58	--	--	--	--	--	--
178	32.62	--	--	--	--	--	--

1917 Lindeman

Average content of the ore is low, 44.4% Fe, in a shipment to Sydney, 33.2% Fe average from one of the pits operated by Nova Scotia Steel and Coal.

Sample taken from an ore dump near the main shaft.

Iron	48.70%
Silica	4.62%
Alumina	1.90%
Lime	9.25%
Magnesia	0.68%
Phosphorus	0.065%
Sulphur	0.087%

1923 Tickle, G. (NSDME AR 11K/01C 25-C-02 (02))

Fe_2O_3	96.14%	98.09%
Al and Mn oxides	0.60%	0.15% Mn

Lime	0.11%	Tr
Sulphur	0.01%	
Phosphoric acid	0.04%	0.016%
Siliceous matter	2.12%	1.30%
Moisture	0.08%	
Mg	0.10%	Tr
Titanium		Nil
Fe	67.30%	

POTENTIAL:

Tickle was optimistic regarding continuity of vein for approximately 300 ft from L to J, (Fig. 4), estimates 400 000 tons, and considers it safe to estimate not less than 2 000 000 tons of potential ore.

General statements gleaned from assessment reports and references cited indicate that the hematite is of discontinuous or pod-like nature with the probability low for large tonnages (NSDME 11K/01C 25-C-02 (05)).

Bergman, H. J., 1961 (NSDME 11K/01C 25-C-02 (05)) states that the iron-bearing zone extends from St. Andrews Channel S22W for 2000 to 3000 feet with hematite along the length. Iron occurs as erratic lenses of hematite which do not appear to have continuity along strike and the possibility of there being a single body of large tonnage appears to be remote.

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

A brief examination was made of this occurrence in order to sort out the confusion in existing MOD cards between Ingraham/McAllister and the McPherson occurrences and to take samples for trace element analyses.

Table 1 is a list of samples collected from this occurrence.

TABLE 1

INGRAHAM/McALLISTER SAMPLES

88 IM 5701	Brecciated hematite, limonite, specularite, calcareous, containing quartz fragments. Selected sample.
88 IM 5702	Brecciated hematite, limonite, calcareous. Selected sample.
88 IM 5703	Brecciated earthy and massive hematite, barite crystals in vugs. Selected sample.
88 IM 5704	Laminated shale, hematitic, iron-rich laminae. Hematite on fracture surfaces. Selected sample.

There are three kinds of hematite:

(a) bedded but now fragmental red, earthy
(b) metallic
(c) specularite associated with carbonate, barite veinlets.

The deepest shaft follows a near vertical shatter- zone, 016°/V, with approximately 6 m exposed. Bedding 020°/60°SE.

A total of four samples were analyzed by Bondar Clegg, Ottawa, by a combination of Direct Irradiation/INAA and Atomic Absorption methods for 36 elements. The results of the analyses are given on Table 2.

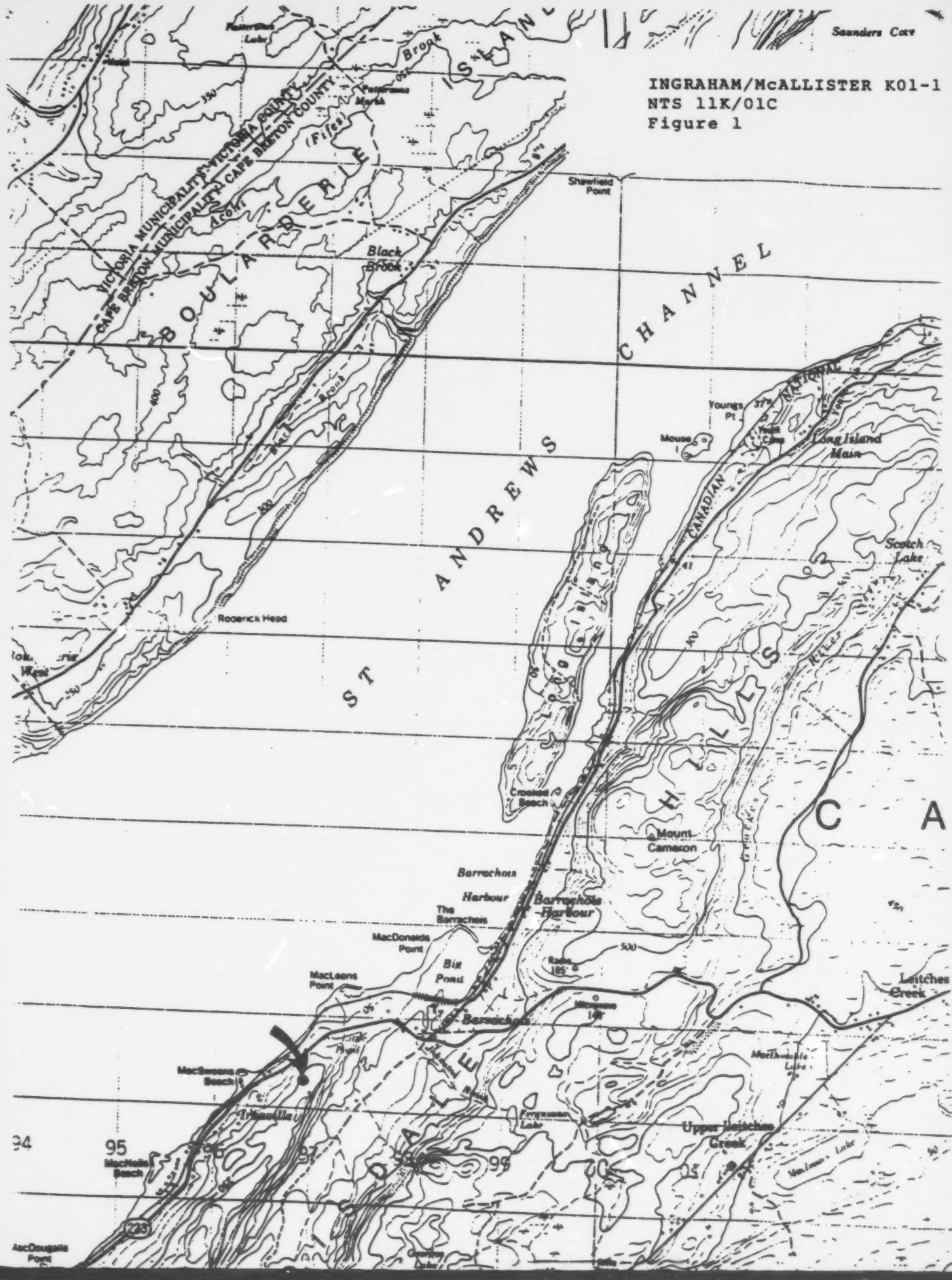
Anomalous values are listed in the following Table.

TABLE 3

INGRAHAM/McALLISTER ANOMALOUS VALUES

	Fe%	Ni ppm	As ppm	Ba ppm
88IM5701	21.8	210	106	--
5702	20.6	220	57.8	1900
5703	44.8	180	67.3	19700
5704	--	--	--	--

The high barium values reflect the presence of barite.


INGRAHAM/McALLISTER K01-1
NTS 11K/01C
Figure 1
Saunders Cove
Pasquerons Marsh
Brook
VICTORIA MUNICIPALITY-VICTORIA COUNTY
CAPE BRETON MUNICIPALITY-CAPE BRETON COUNTY
(Fifes)
Acorn
BOULARDERIE ISLAND
Shawfield Point
Black Brook
Brook
ST ANDREWS CHANNEL
Youngs Pt.
Mouse I.
Long Island Main
CANADIAN NATIONAL
Scotch Lake
Roderick Head
Crowdis Beach
Mount Cameson
HILLS
Barrachois Harbour
The Barrachois
MacDonalds Point
Big Point
MacLeans Point
Barrachois
Little Point
MacSweens Beach
Irishville
MacNeils Beach
Leitches Creek
Upper Barrachois Creek
MacDougalls Point
94
95
99
223

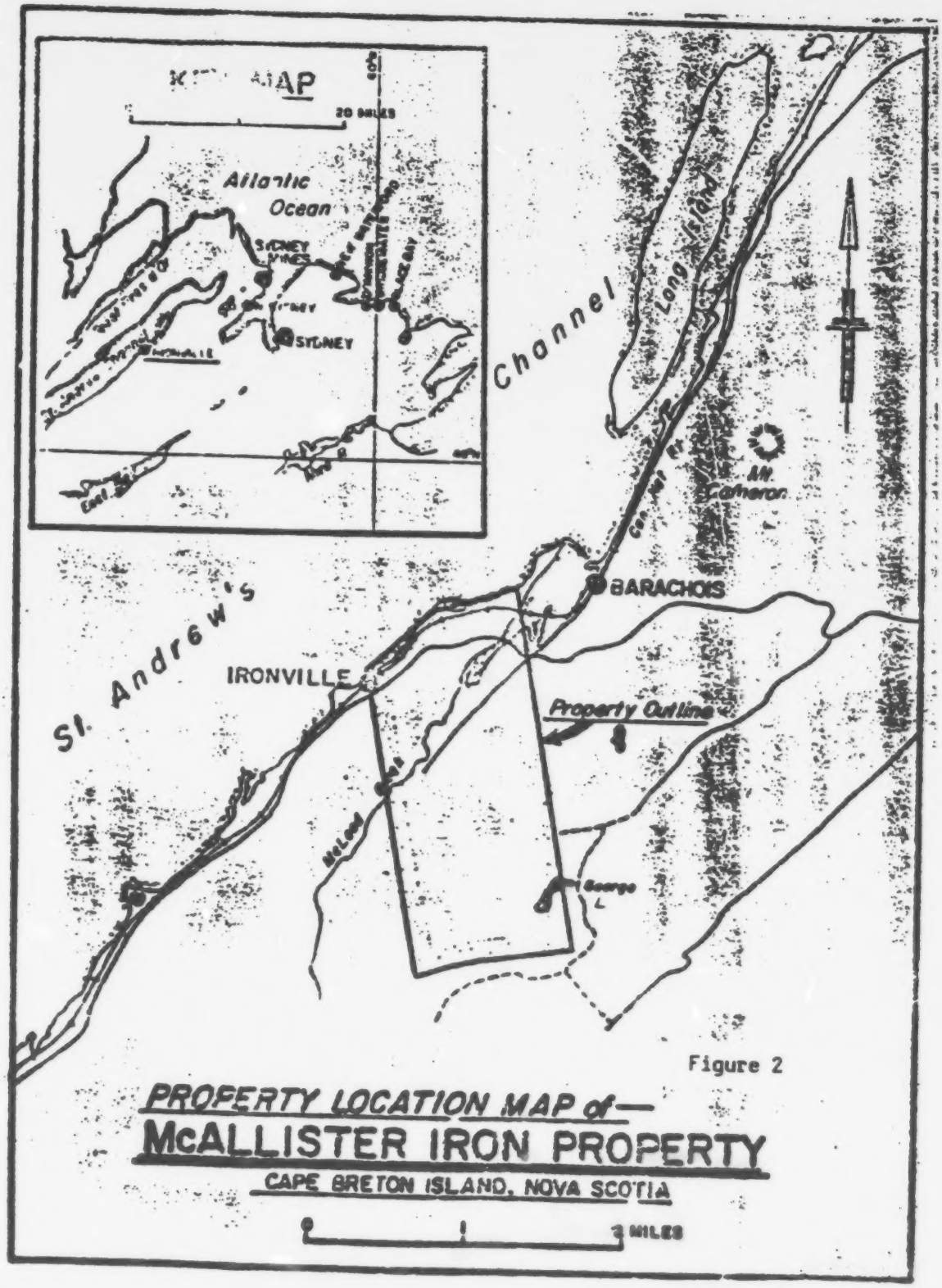


Figure 2

PROPERTY LOCATION MAP of—

McALLISTER IRON PROPERTY

CAPE BRETON ISLAND, NOVA SCOTIA

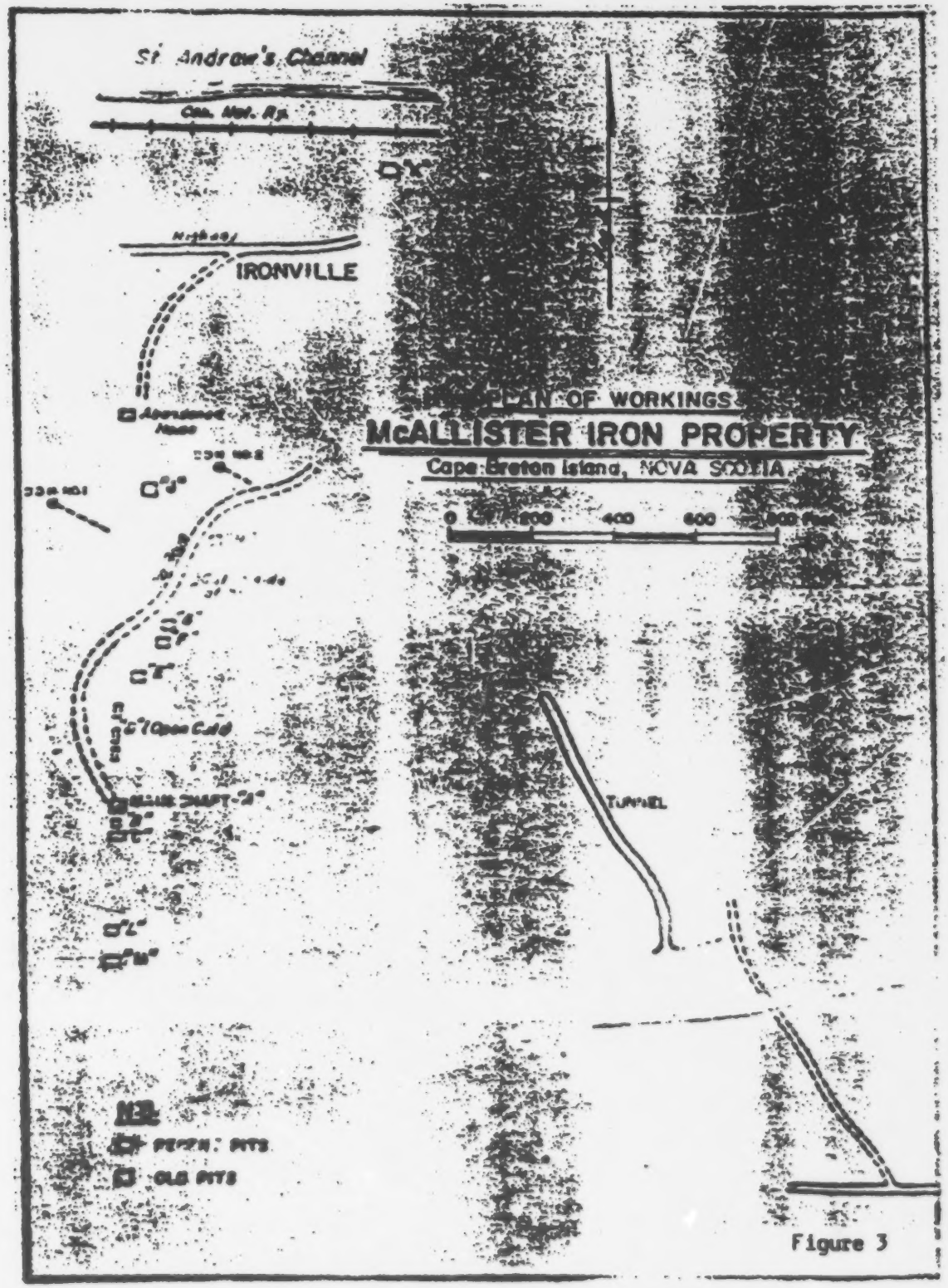

St Andrew's Channel
IRONVILLE
PLAN OF WORKINGS
McALLISTER IRON PROPERTY
Cape Breton Island, NOVA SCOTIA
TUNNEL

Figure 3

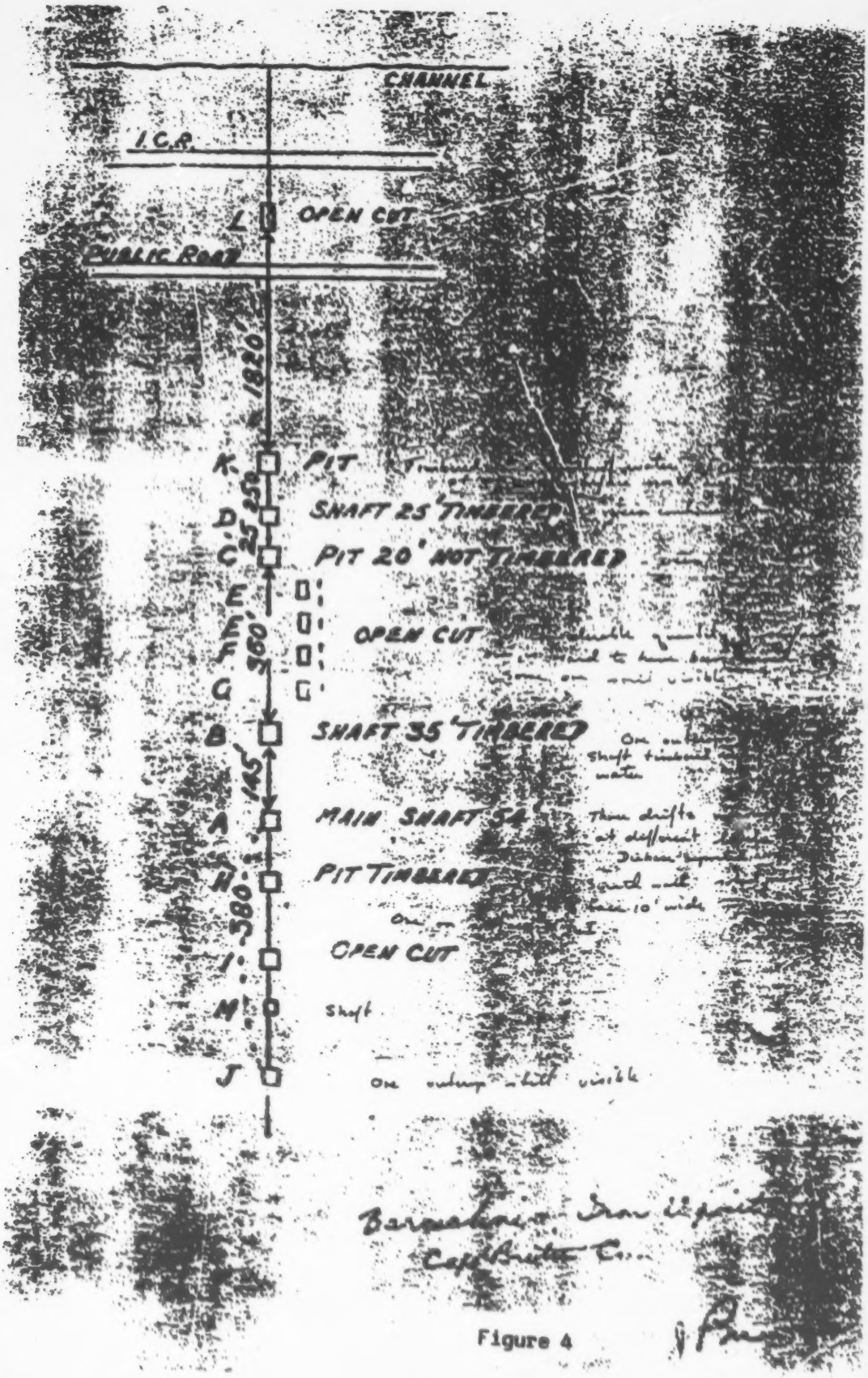

CHANNEL
I.C.R.
L
OPEN CUT
PUBLIC ROAD
1820'
K
PIT
25'
SHAFT 25' TIMBERED
D.
C
PIT 20' NOT TIMBERED
E
E
F
G
360'
OPEN CUT
B
SHAFT 35' TIMBERED
A
MAIN SHAFT 54'
H
PIT TIMBERED
380'
I
OPEN CUT
M
J

Figure 4

T6

TABLE 6
INGRAHAM MINE ANALYSES

INGRAHAM MINE [illegible]

INGRAHAM MINE ATOMIC ABSORPTION

[redacted]

McPHERSON

OCCURRENCE: McPHERSON K01-13 (Iron-copper)
(Barrachois Magnetite)

LOCATION: 511440 N 700480 E NTS 11E/01C

ACCESS:

The occurrence is located 2.6 km east of Barrachois about midway between the highway junction at Barrachois and Leitch Creek. The mineralized zone is conspicuous on the north side of the highway at a contact between white crystalline limestone and skarn on the west and gneissic rocks on the east.

The workings are located immediately north of the highway and originally consisted of 3 shafts and a number of excavations. Highway relocation appears to have obliterated some of the workings but the main shaft and dump remain.

REFERENCES:

Barr, S. M. and Setter, J. R. H., 1984. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p. and geological map, scale 1:100 000.

Lindeman, E. and Bolton, L. L., 1917. *In* Iron Occurrences in Canada, Vol. 2. Mines Branch, p. 197-198.

Woodman, J. E., 1909. Report on the iron ore deposits of N.S., Part 1. Canada Department of Mines, Report No. 20, p. 220-222.

Wright, J. D., 1975. Iron Deposits of Nova Scotia. NSDME Economic Geology Series 75-1, p. 122.

GEOLOGY:

The workings are in a skarn zone at a contact between late Precambrian George River Group (Barr and Setter, 1984) crystalline limestone (marble) and gneissic Boisdale intrusions (Lindeman, 1917).

Magnetite occurs in many isolated localities beginning at the main workings at the north side of Barrachois-Leitch Creek highway and are reported to extend, probably intermittently, northeast for over 2 km.

Ore at the main workings beside the highway occurs in pods within the skarn, as masses partly replacing the country rock and filling fissures. The magnetite is finely crystalline, with pyrite with serpentine, limestone and calcite gangue (Woodman, 1909).

POTENTIAL:

The ore occurs in irregular stringers and pockets which are likely to pinch or swell in short distances. It is reported that these obtain a width of 3 feet of clean ore but most places where the ore is visible the widths are not more than 12 to 15 inches (Woodman, 1909).

PREVIOUS WORK:

There were three shafts and a number of excavations.
Shaft #1 on an incline into the hillside.
Shaft #2 vertical to a depth of 20 feet.
Shaft #3 on crystalline limestone - intrusive contact.

PREVIOUS ANALYSES:

1909 Woodman; sample 166 is made up of ore taken in part from a pit which exposes two small "veins" and in part from the the dump. Sample 165 is from a dump of ore at the main excavation, and 127 is from a dump resulting from work done in May, 1907.

Sample	Fe	SiO_2	Al_2O_3	CaO	MgO	MnO_2	P	S
A-12	54.00	--	--	--	--	--	Tr	6.180
A-13	57.12	--	--	--	--	--	-	.472
A-14	56.40	5.56	--	--	--	--	Tr	.214
A-15	55.64	5.66	--	--	--	--	Tr	.396
A-16	51.96	9.22	--	--	--	--	Tr	.374
A-17	36.53	11.14	--	--	--	--	.020	.500
A-18	62.90	--	--	--	--	--	Tr	.204
A-19	47.46	11.44	4.14	1.643	5.755	.004	.007	.209
A-20	58.42	7.66	--	--	--	--	.012	1.470
A-21	51.51	9.03	--	--	--	--	.137	--
A-22	51.80	9.83	--	--	--	--	.137	--
A-23	51.11	10.17	2.13	.403	4.032	.600	.015	1.940
165	48.38	9.60	2.12	2.150	8.620	--	.040	.254
166	30.40	--	--	--	--	--	-	--
127	55.47	7.06	1.96	.300	9.160	--	.030	.024

1917 Lindeman; sample from stockpile near shaft #1.

Iron	58.10%
Lime	0.35%
Magnesia	6.90%
Alumina	1.92%
Silica	6.82%
Phosphorous	0.004%
Sulphur	0.50%

RESULTS OF 1988 FIELD CHECK (Northcote and Armitage)

A brief examination was made of the old workings and adjacent exposures in road cuts to the east and west of the main shaft. The roadbed has been relocated since 1917 obliterating some of the old workings.

Geology:

To the west of the main shaft are exposures of crystalline limestone and skarn. The shaft is partly collapsed and waterfilled but massive magnetite containing minor chalcopyrite in skarn is visible on the dump. To the east of the shaft the road cuts are biotite-amphibole gneiss cut by quartz veins and contain sulphide segregations. No petrographic work was done. Table 1 is a list of samples from the McPherson occurrence.

TABLE 1

McPHERSON SAMPLES

88-MM-6101 Schist/gneiss; biotite, sericite. Nonmagnetic. Pyrite in fractures.

88-MM-6102 Gneiss; as above, coarser grained, less foliated. Quartz veins and segregations.

88-MM-6103 Quartz veins; chlorite segregations, sericite.

88-MM-6104 Skarn; serpentine, chlorite, quartz, (minor epidote, feldspar(?)). Iron-stained.

88-MM-6105 Marble skarn; serpentine.

88-MM-6106 Magnetite and skarn.

88-MM-6107 Marble.

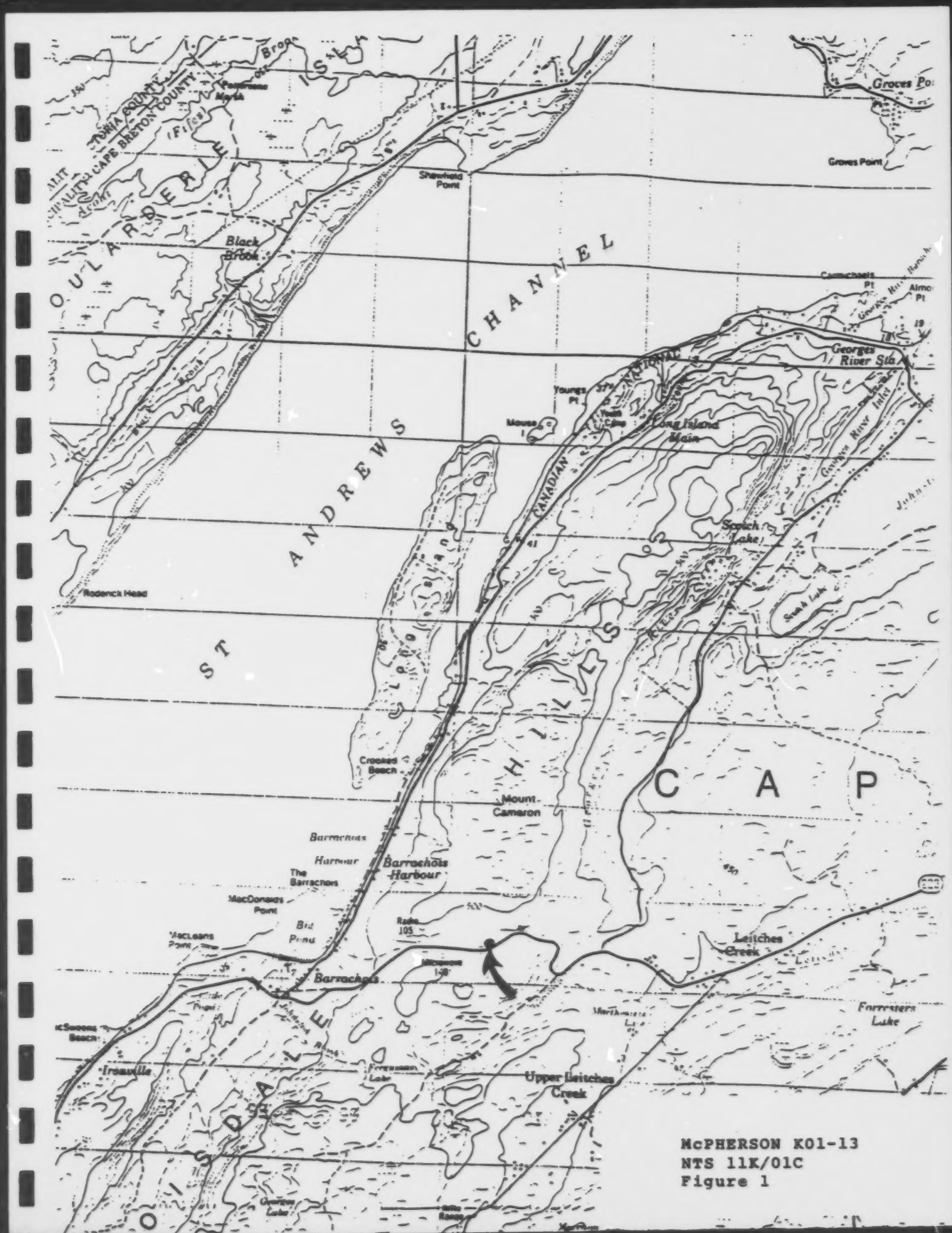
88-MM-6108 Magnetite and skarn.

Analyses:
Eight samples were analysed for 36 elements at Bondar Clegg Laboratory, Ottawa, using a combination of Direct Irradiation/INAA and Atomic Absorption methods. Other than Fe, selected magnetite-rich samples also contain significant Cu and are weakly anomalous in Zn and Au, none of which were reported previously.

TABLE 3

McPHERSON ANOMALOUS AND WEAKLY ANOMALOUS ELEMENTS

Sample	Sc	Cr	Fe%	Co	Zn	Rb	Au ppb	Th	Cu
6101	29.4	230	8.6	--	--	210	--	22.1	--
6102	27.0	220	8.5	--	200	220	--	--	--
6103	--	440	-	--	--	-	--	--	--
6104	14.0	-	-	--	--	-	--	--	--
6105	--	-	-	--	--	-	--	--	--
6106	--	-	61	85	940	-	213	--	2440
					(683)		(61)		
6107	--	-	86.9	76	300	-	--	--	1009
6108	--	-	80	110	370	-	--	--	941


OULARDERIE
ST ANDREWS CHANNEL
CANADIAN
HILLS
CAP
Black Brook
Shewfield Point
Grosses Point
Georges River Sta
Long Island Main
Scotch Lake
Roderick Head
Crooked Beach
Mount Cameron
Barrachois Harbour
The Barrachois
MacDonalds Point
Bird Point
Barrachois
Leitches Creek
Forresters Lake
Upper Leitches Creek
Irrouville
McPHERSON K01-13
NTS 11K/01C
Figure 1

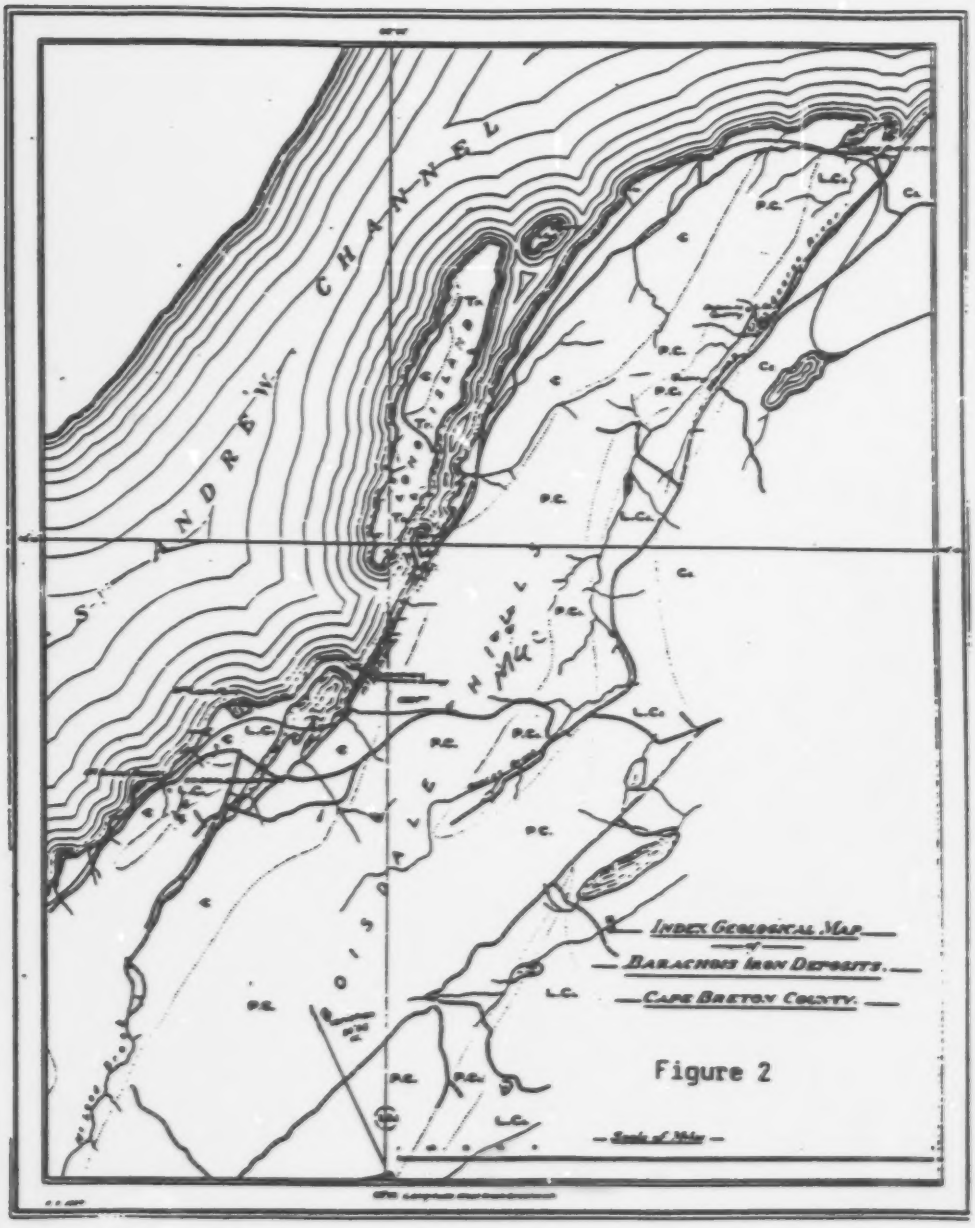

S T A N D R E W S
C H A N N E L
INDEX GEOLOGICAL MAP
of
BARACHOIS IRON DEPOSITS.
CAPE BRETON COUNTY.

Figure 2

T5

TABLE 5
McPHERSON MINE ANALYSES

McPHERSON'S MINE #2 + 33

McPHERSON'S MINE ATOMIC ABSORPTION #2

CURRIE LEAD-ZINC

OCCURRENCE: CURRIE LEAD-ZINC K01-16 (lead, zinc, gold, silver, copper, arsenic)
(REAR BOISDALE)

LOCATION:

(a)	510380 N	696300 E	NTS 11K/01B
(b)	501400 N	696340 E	

ACCESS:

From Dougald Road, at Adams Lake townsite, drive north approximately 100 m to access road leading west. Drive west for 0.5 km to branch in road. Take the less used branch to the northwest (right), drive an additional 50 m to location (b) which is a small borrow pit on the north side of the road. From (b) drive an additional 100 m to (a), a reclaimed area immediately to the north of the road where there was formerly a shaft and which now has mineralized rubble on the bulldozed dump.

REFERENCES:

Barr, S. M. and Setter, J. R. D., 1986. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p.

NSDME AR 11K/01B 27-C-65 (01, 02, 03, 04).

NSDME Mines Report, 1951. Part 1, pages 55 and 75-76.

RECENT WORK DONE:

1951 AR 11K/01B 27-C-65 (02)
Diamond-drilling, 4 holes, pyritic crystalline limestone. Veins of calcite, and streaks of serpentine and chlorite.

1961-2 AR 11K/01B 27-C-65 (03)
Ground electromagnetic and magnetometer survey. No conductors or magnetic anomalies were encountered over the shaft area. Other anomalies not of sufficient magnitude to require diamond-drill testing.

1965 11K/01B 27-C-65 (01)
No significant mineralization was found on the property except at the mine dump. The shaft area was undercut by five diamond-drill holes with no significant results. A soil sampling survey was carried out.

GEOLOGY:

The Currie sulphide occurrences, (a) and (b), are in late Precambrian George River Group just to the north of the contact with lower to middle Devonian McAdam Lake Formation. The George River consists of interbedded low grade metamorphosed quartzite, marble and minor slate (Barr and Setter, 1986).

RESULTS OF THE 1988 FIELD CHECK: (Northcote and Armitage)

(a) Currie Lead-Zinc Occurrence:
Mineralization forms pods of sulphides in recrystallized limestone (marble). There is little to see at the shaft area except bulldozed dump material. About 50 m to the north, there is a limestone ridge separated from the shaft area by structural linears.

(b) Pyritic Zone (Borrow Pit):
A second mineralized zone is located on the north side of the road about 100 m

to the east. The zone is in sheared-shattered impure (feldspathic) quartzite. Shear trend is approximately 085°/? The zone is mineralized by sulphides (pyrite and graphite (?)). Iron staining.

Table 1 lists the samples collected from the two occurrences.

TABLE 1

SAMPLES FROM THE CURRIE SULPHIDE OCCURRENCES

(a) Currie Lead-Zinc Occurrence:

88-RB-6601 Marble skarn, pyrite, chalcopyrite, arsenopyrite, galena, sphalerite. From dump at shaft area.
88-RB-6602 Marble, weakly pyritic. From ridge 50 m to north of shaft.
88-RB-6603 Marble skarn, pyrite, chalcopyrite, arsenopyrite, sphalerite, lesser galena. From dump in shaft area.
88-RB-6604 Marble skarn, pyrite, sphalerite, arsenopyrite, galena. From dump in shaft area.

(b) Pyritic Zone (Borrow Pit):

88-MC-6501 Feldspathic quartzite, pyrite and graphite(?). From borrow pit.
88-MC-6502 Feldspathic quartzite, pyrite and graphite(?). From borrow pit.

ANALYSES: (Northcote and Armitage)

Six samples from the two occurrences were analyzed for a total of 36 elements at Bondar Clegg Laboratory, Ottawa. The analyses were done by Direct Irradiation/INAA, Atomic Absorption, and conventional assay. The results of the analyses are listed on Table 2 and anomalous values shown on Table 3.

TABLE 3

ANOMALOUS VALUES

(a) Currie Lead-Zinc Occurrence:

Sample	Zn	As	Ag	Cd	Sb	Au ppb	Cu	Pb
6601	35600	9000	6.4	410	--	1510	657	3390
	>20000					1146	0.06%	0.33%
	3.76%							
6602	--	--	--	--	--	--	--	--
6603	26700	9000	--	320	20.5	826	510	254
	>20000					678	0.06%	
	3.09%							
6604	13000	1480	6.6	150	--	206	--	5400
	14900					189		0.54%
	1.55%							

(b) Pyritic Zone (Borrow Pit):

Nothing significantly anomalous.

CURRIE LEAD-ZINC K01-16
NTS 11K/01B
Figure 1

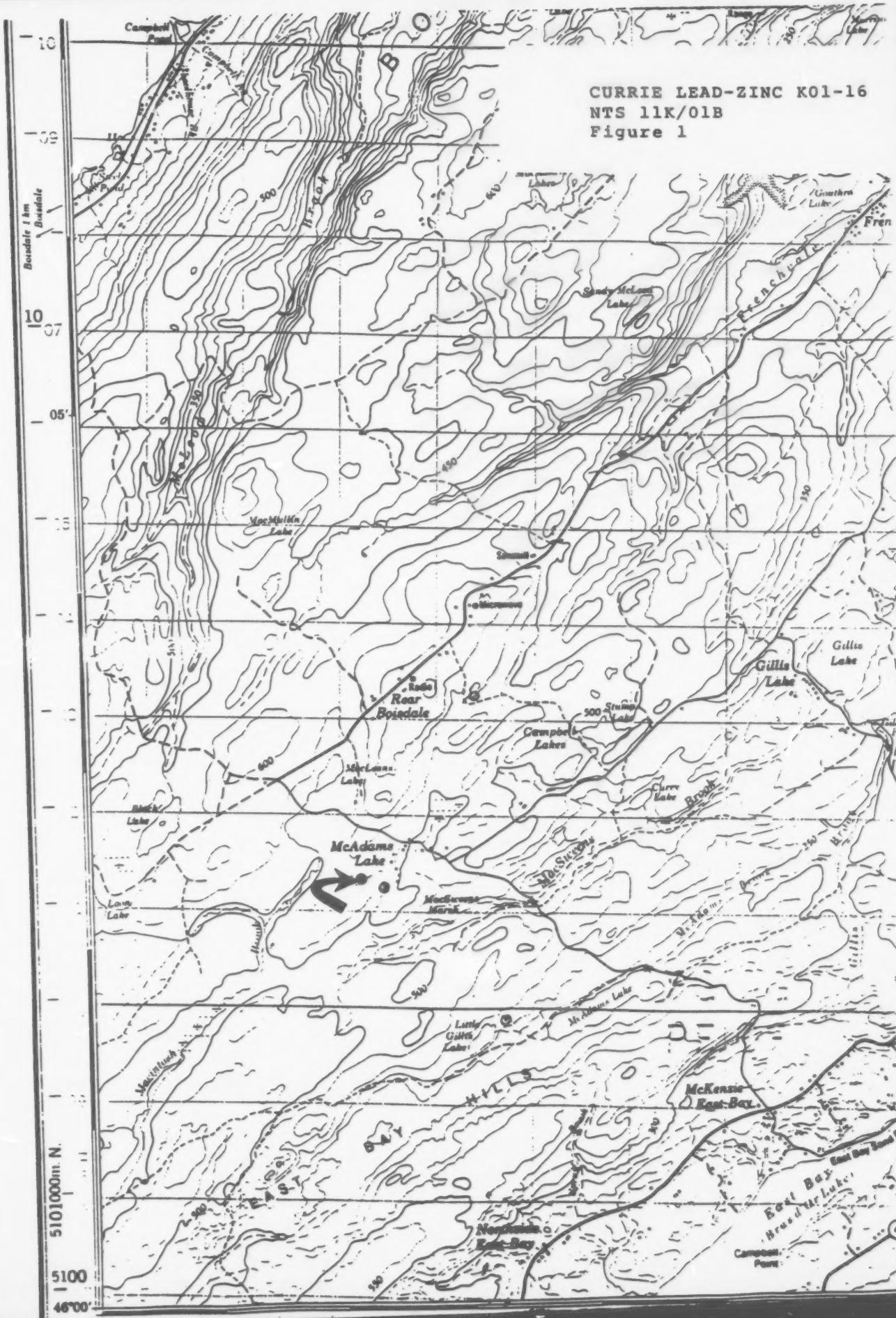


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TABLE 2
CURRIE (REAR BOISDALE) PB / ZN OCCURRENCE ANALYSES

CURRIE / Mc ROAN LAKE (REAR BOISDALE) PB/ZN AU + AG

SAMPLE	Au	Ag	Pb	Zn	Cu	As	Sb	Bi	Mo	Ni	Co	Mn	Fe	Ba	Sr	Ca	Mg	Al	Ti	P	S
4401	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4402	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4403	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4404	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

M.CURRIE AU + AG

SAMPLE	Au	Ag	Pb	Zn	Cu	As	Sb	Bi	Mo	Ni	Co	Mn	Fe	Ba	Sr	Ca	Mg	Al	Ti	P	S
4501	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4502	0.01	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

CURRIE / Mc ROAN LAKE (REAR BOISDALE) PB/ZN ATOMIC ABSORPTION

SAMPLE	Cu	Zn	Pb	Ag	Ni	Co	Mn	Fe
4401	697	>20000	<0.2	3398	7	1144		
4402	7	1	<0.1	1	1	13		
4403	316	>20000	6.0	2214	1	673		
4404	238	14000	6.6	3488	1	193		

M.CURRIE ATOMIC ABSORPTION

SAMPLE	Cu	Zn	Pb	Ag	Ni	Co
4501	102	151	<0.2	18	2	1
4502	18	11	<0.1	0	1	1

CURRIE / Mc ROAN LAKE (REAR BOISDALE) PB/ZN ASSAYS

SAMPLE	Cu%	Pb%	Zn%
4401	0.04	0.32	3.76
4402	<0.001	<0.001	0.001
4403	0.001	0.001	0.001
4404	0.02	0.14	1.28

[redacted]

[redacted]

CAMPBELL LAKES

OCCURRENCE: CAMPBELL LAKES K01-18
Field Check 1988 showed nothing of economic significance in surface exposures.

LOCATION: 5103260 N 697440 E NTS 11K/01B

ACCESS:

Drive 1.1 km northeast from Rear Boisdale to Mac Sweens Road. Take this road south for 0.6 km through private property (presently owned by Clarence Currie). Limestone with siliceous lensoids form a ridge on the northwest side of a marshy area. Outcrop is continuous for about 300 m northeasterly.

REFERENCES:

Barr, S. M. and Setter, J. R. D., 1986. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p.

NSDME Mines Report, 1951. Part 1, pages 55 and 75-76.

PREVIOUS WORK:

A number of excavations were cut into bedrock at some unknown time in the past either for a source of limerock or in search of metallic minerals.

1951 Two diamond-drill holes in this area were drilled by Mina-Nova Mines Ltd.

Hole #5, Tract #58, Claim C, depth 221', Brg N @ -45° in grey quartzite.

Hole #6, Tract #63, Claim A, depth 237', Brg E @ -60° in limestone with sandstone beds.

GEOLOGY:

This pyritic occurrence is in late Precambrian limestone and quartzite of the George River Group (Barr and Setter, 1986).

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

A northeasterly-trending ridge of predominantly limestone with interbedded quartzite and siliceous lensoids has continuous outcrop for 300 m along a ridge flanking the northwest side of a marshy area. These rocks contain scattered, weakly iron-stained zones of disseminated pyrite.

Bedding 040°/50° NW
120°/70° NW
110°/70° NW

TABLE 1

CAMPBELL LAKE SAMPLES

88-CL-6401	36 m NE of road. Limestone with minor disseminated pyrite.
88-CL-6402	46 m NE of road at pit. Limestone with minor disseminated pyrite.
88-CL-6403	Just above pit. Limestone with disseminated pyrite and fleck of galena(?).
88-CL-6404	100 m NE of road. Limestone with disseminated pyrite and fleck of galena(?).
88-CL-6405	100 m NE of road. Limestone with disseminated pyrite and fleck of galena(?).
88-CL-6406	160 m NE of road. Quartzite with minor disseminated pyrite.

ANALYSES: (Northcote and Armitage)

Five samples were sent to Bondar Clegg, Ottawa, for analyses for 36 elements. Analyses were done by a combination of Direct Irradiation/INAA and Atomic absorption methods. The results of the analyses are given on Table 2 and indicate nothing of economic or metallogenic significance.

CAMPBELL LAKES K01-18
NTS 11K/01B
Figure 1

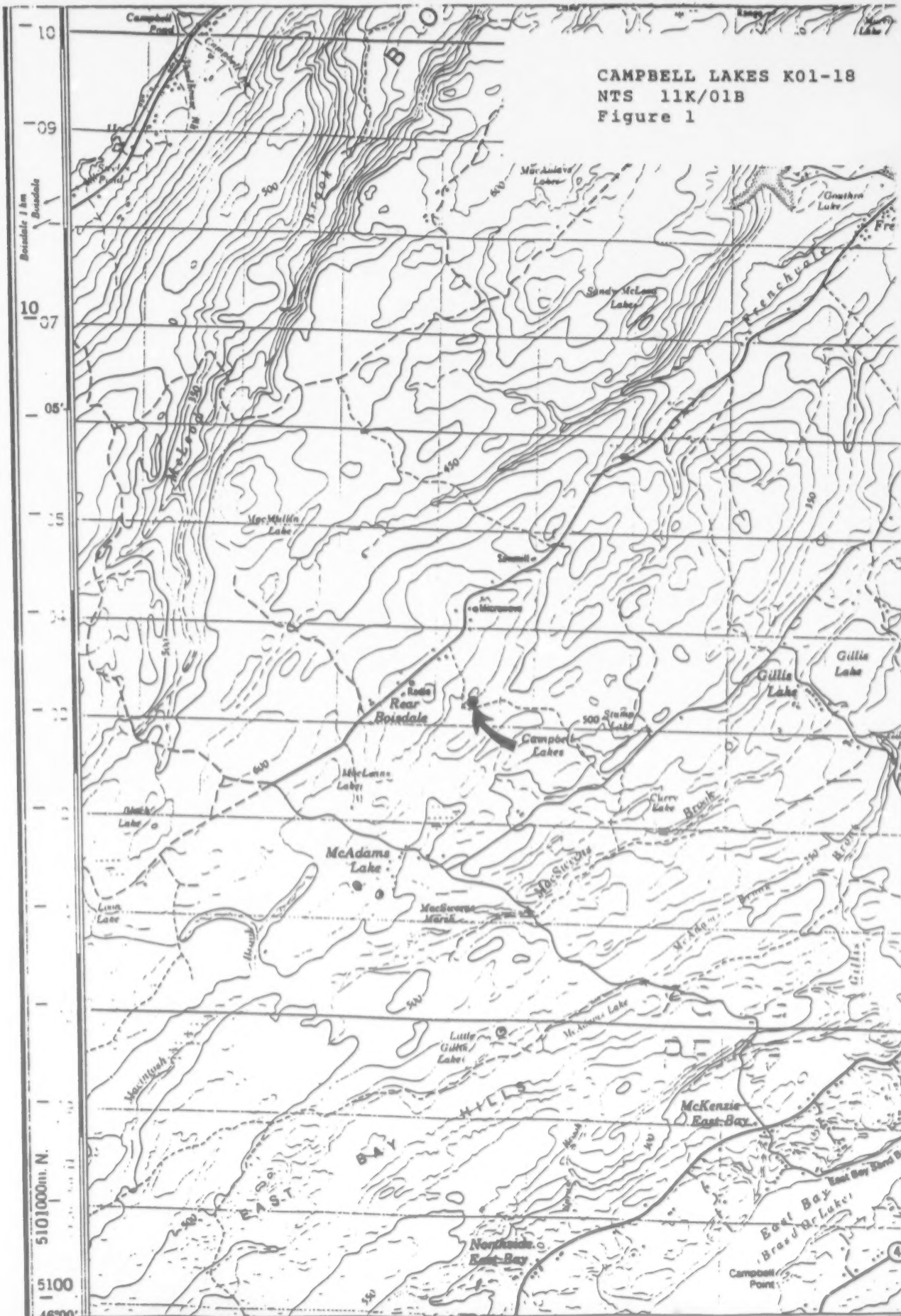

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TABLE 2
CAMPBELL LAKE ANALYSES

CAMPBELL LAKES ATOMIC ABSORPTION

[redacted]

FRENCHVALE

OCCURRENCE: FRENCHVALE K01-19 (Copper)
The mineralization described here hardly warrants occurrence status.

LOCATION: 5105800 N 698950 E NTS 11K/01B

ACCESS:

The occurrence is on the north side of the highway between Frenchvale and Rear Boisdale, 4.2 km southwest of Frenchvale (Fig. 1). The mineralized outcrop is 9.3 m from the edge of the pavement on the nortwest side of the stream following the ditch. The outcrop area measures 13.5 by 80 m.

REFERENCES:

Barr, S. M. and Setter, J. R. D., 1986. Petrology of granitoid rocks of the Boisdale Peninsula, central Cape Breton Island, Nova Scotia. NSDME Paper 84-1, 75 p.

Goranson, E. H., 1933. Precarboniferous geology of the Bras D'Or, Sydney and Glace Bay map sheets, Cape Breton. GSC Unpublished Report, File 21G-4.

PREVIOUS WORK:

Considerable trenching is reported to have been done in this vicinity during the summers of 1929 and 1930. The remaining evidence of surficial modification and elongate piles of field rock is more likely the result of land clearing than a mining trenching operation.

RESULTS OF 1988 FIELD CHECK (Northcote and Armitage)

A cursory check of the outcrop area at the roadside and structurally controlled ridges in the area are in massive carbonate of the George River Group and in gneissic rocks.

Mineralization at the roadside consists of disseminated malachite and manganese dioxide, with widely disseminated chalcopyrite in recrystallized limestone. Galena was reported earlier (Goranson, 1933).

Two samples were analyzed at Bondar Clegg Laboratories for 36 elements by a combination of Direct Irradiation/INAA and Atomic Absorption. Table 1 gives a brief description of the samples and Table 2 lists the results of the analyses.

TABLE 1

FRENCHVALE SAMPLES

88-FV-6301	At roadside. Recrystallized carbonate, mineralized by malachite, manganese dioxide, minor chalcopyrite, possible trace of galena(?).
88-FV-6302	At 100 m north of road, ridge of recrystallized carbonate, very minor disseminated chalcopyrite.

SIGNIFICANCE:

This occurrence is of metallogenic significance for copper in George River carbonate but the mineralization noted during this field check hardly deserves

mineral occurrence status. The weakly anomalous copper value of 576 ppm reflects the weakly disseminated malachite and chalcopyrite. Disseminated galena reported by Goranson was not confirmed visually in hand specimens or analyses.

It is probable that the workings and mineralization described by Goranson are nearby but were missed.

FRENCHVALE K01-19
NTS 11K/01B
Figure 1

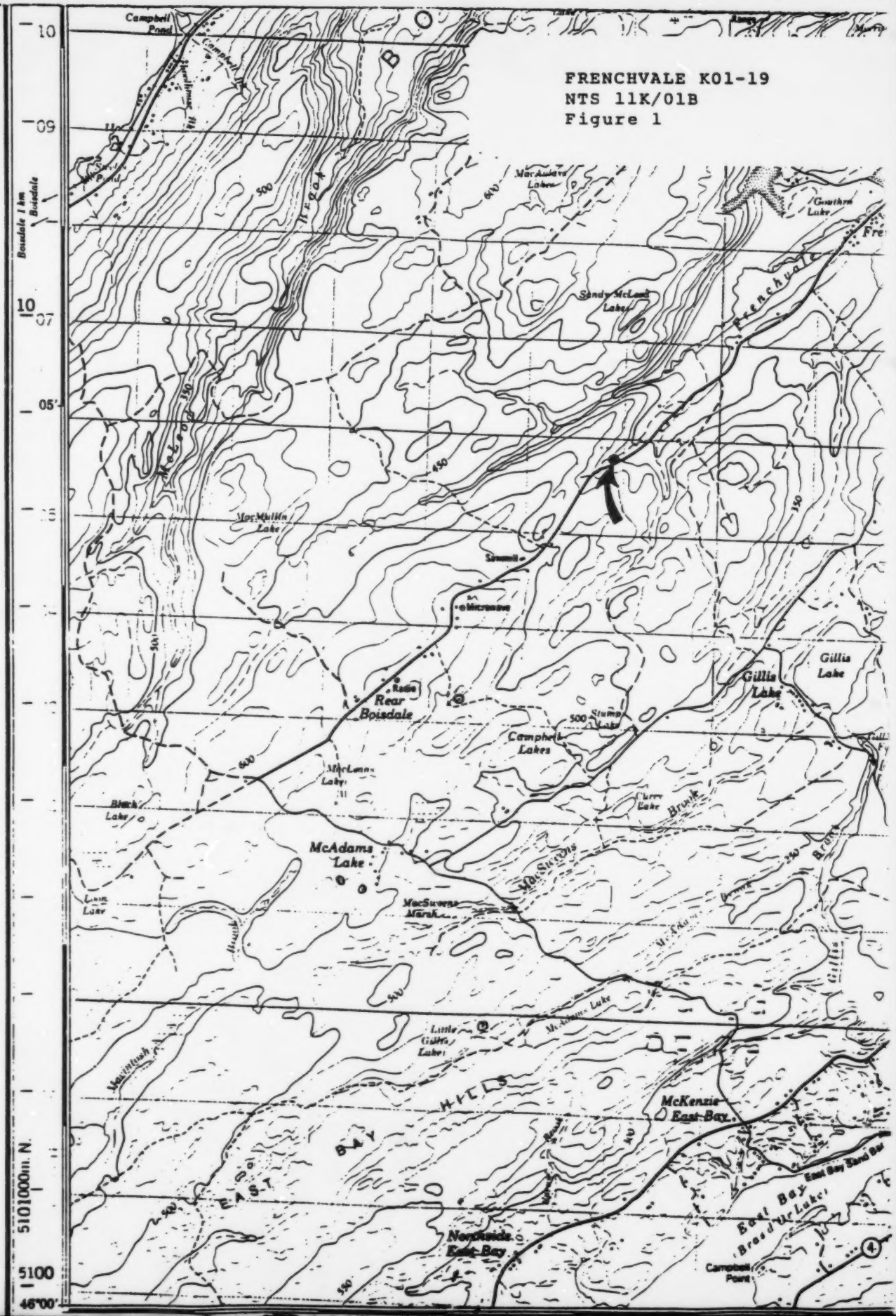

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TABLE 2
FRENCHVALE ANALYSES

FRENCHVALE RU + SS

88-PU	MoK	Sr		Fe%													
6301	0.13	0.4	<.007	0.3	<.10	<.001	<.1000	0.32	<.008	7.97	<.038	<.0007	<.13	<.12	<.020	<.1
6302	0.03	0.6	<.20	0.3	<5	<.20	<1000	0.49	<.08	7.97	<.38	<.007	<1	.12	<.02	<.005

FRENCHVALE ATOMIC ABSORPTION

88-PU	Cu	Zn		Pb	Rb	Sr
6301	376	45	<0.1	<.4		<.05
6302	18	16	<0.1	<.4		<5

[illegible]

BLACKETTS LAKE

OCCURRENCE: BLACKETTS LAKE K01-23

LOCATION: 5103150 N 203900 E NTS 11K/01B

ACCESS:

From Blacketts Lake Village, at cross roads, drive southwesterly for about 6 km to the site of an old lumber mill. From the top of the hill at the lumber mill site walk bearing 334° for approximately 250 m to MacDonalds Brook. A waste dump (modified by bulldozing) is located on the south bank of the brook; possibly the site of an old shaft(?). Slightly downstream, on the shoulder of the slope there is an old trench approximately 15 m long, grown in by trees. On the opposite (north) side of the stream there are two shallow hand dug trenches cut into bank. No bedrock was observed in the trenches.

REFERENCES:

Barr, S. M., Macdonald, A. S. and White, C. E., 1988. The Fourchu Group and Associated Granitoid Rocks, Coxheath Hills, East Bay Hills, and Southwestern Sterling and Coastal Belts, Southeastern Cape Breton Island, Nova Scotia. Geological Survey of Canada, OF 1759, Map 1:50 000, 2 sheets, 15 p.

NSDME AR 11K/01B 13-C-14 (02, 03, 04).

PREVIOUS WORK:

Age of dump and shafts is not known.

1967-8 NSDME AR 11K/01B 13-C14 (02, 03, 04), Terra Nova Explorations: Geological and geochemical surveys, (soils, silts for Zn and Cu) report a Mo occurrence in rhyolite which corresponds closely in position to K01-23. Geophysical survey, IP, over the area. Diamond-drilling: grid location places DDH#1 in granitic rock approximately 700 feet NE of K01-23. There are two additional drillholes to the northeast, one of which reported minor Cu intercepts.

Geologic mapping by Terra Nova reports 3 copper occurrences in the general area, none of which corresponds to K01-23.

REGIONAL GEOLOGY: (Barr et al., 1988)

The Blacketts Lake occurrence is in a narrow belt of Late Hadrynian (Fourchu Group) rocks with a general description of rhyolitic tuffs and flows; minor mafic to intermediate volcanic rocks and volcaniclastic sedimentary rocks. On their map, Barr et al. (1988) show Fourchu rocks in contact with diorite and granodiorite to the north and unconformably(?) overlain by undivided Carboniferous rocks to the southeast.

RESULTS OF 1988 FIELD CHECK: (Northcote and Armitage)

Geology of Occurrence:

The occurrence is in Fourchu felsic (pyroclastic) volcanics. Approximately 150 m upstream from the occurrence (just above a bridge) felsite is in contact with hybrid (contaminated) intrusives which extend upstream. Approximately 50 m below the main workings are outcrops of clastic Carboniferous sediments.

The dump material was of primary interest consisting of abundantly pyritized felsic volcanics with lumps of friable granular sulphides which look similar to concentrates. Table 1 is a description of samples collected for chemical analyses. The analyses were done by a combination of Direct Irradiation/INAA for Au + 33 elements, Atomic Absorption for Cu, Pb, Zn, Ag, and by Fire Assay/Atomic

Absorption for Au. The results of the analyses are listed on Table 2.

Table 2 indicates nothing of economic interest but all samples contain iron from sulphides and oxides. Some samples are slightly anomalous in Cu, Mo, W, As, U, Co, Ni, Cr, Sc, (Au) (Table 3).

TABLE 1

BLACKETTS LAKE SAMPLES

88-BL-6801 Finely disseminated friable sulphides.

88-BL-6802 Breccia, small fragments generally less than 0.5 cm, very fine grained argillaceous/tuffaceous(?), widely scattered light cream tuffaceous fragments. Weak siliceous diffuse veining.

15 - 20% sulphides, pyrite, nonmagnetic pyrrhotite(?), disseminated and blebs, clusters of grains/massive patches, very fine and coarser grained varieties. Requires a polished thin section.

88-BL-6803 Felsic lithic breccia, pyroclastic and flow fragments. Some fragments contain abundant very fine disseminated pyrite. Coarser pyrite in breccia matrix and in fractures.

88-BL-6804 Brecciated, altered felsic breccia/pluton(?), purplish-grey colour indicating hematitic, patches of metallic hematite grains. Lithic fragments generally aphanitic, no obvious granitic textures, pervasive alteration. Crackle brecciation filled with sericite/pyrophyllite(?) Iron-stained fracture surfaces.

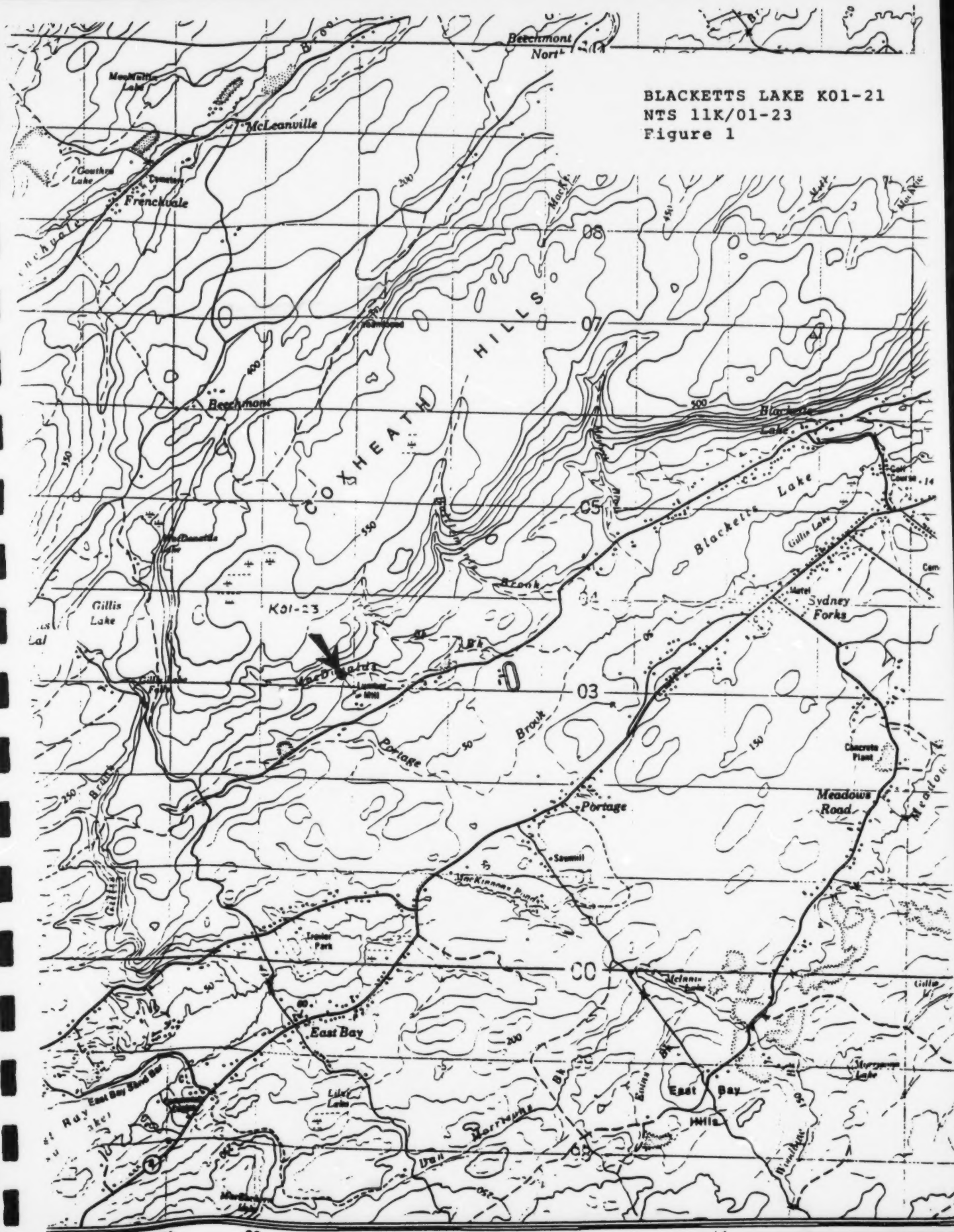
88-BL-6805 Fine grained hybrid porphyritic (porphyroblastic) diorite(?), very sparsely disseminated pyrite, limonitic pits.

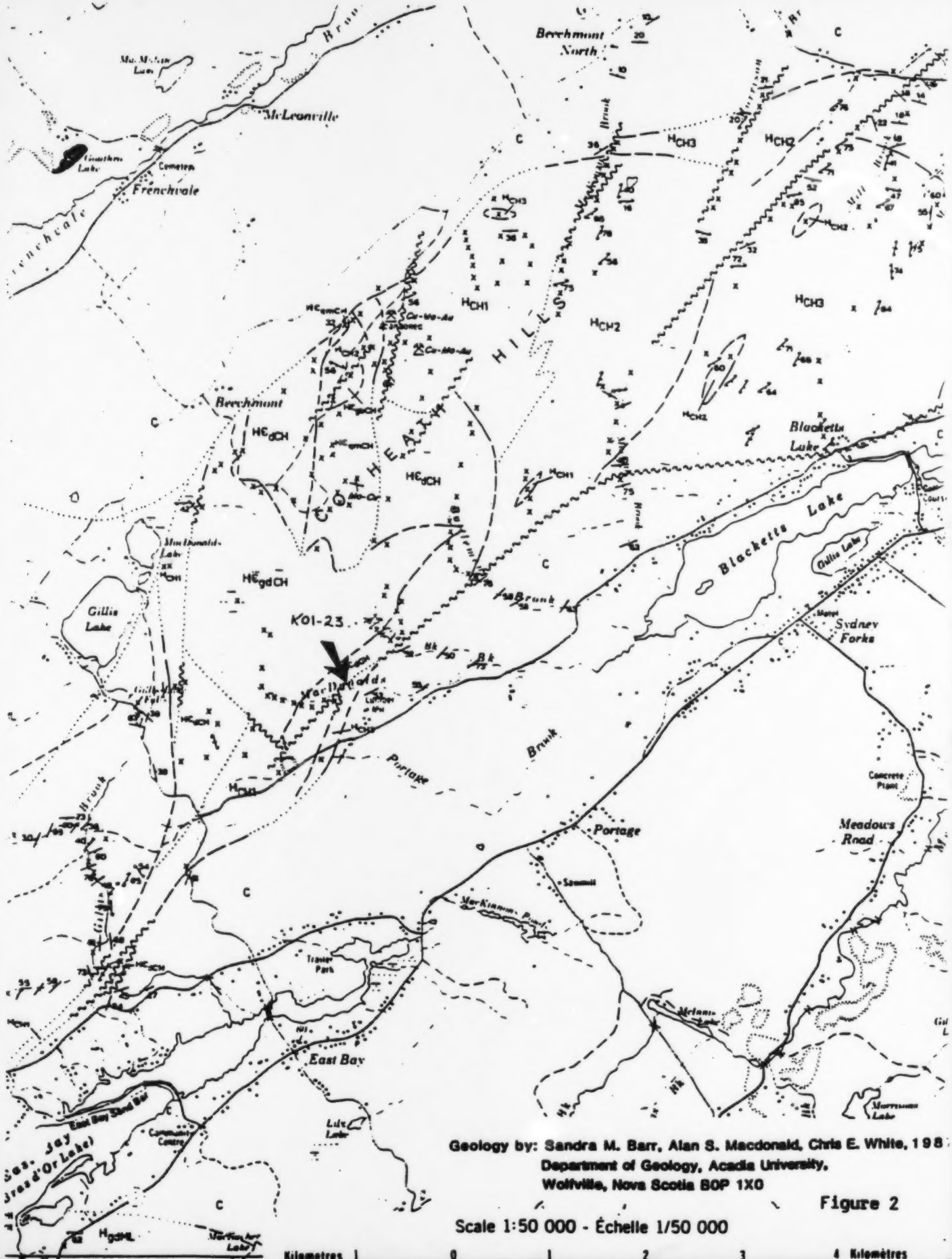
TABLE 3

BLACKETTS LAKE ANOMALOUS VALUES

Sample	Fe%	Cu	Sc	Cr	Co	Ni	As	Rb	Zr	Mo	W	Au	U
6801	80.5	X	-	X	-	-	X	-	-	X	X	-	X
6802	17.0	-	X	X	X	X	X	-	-	X	-	X	-
6803	--	-	-	X	-	-	-	X	-	-	-	-	-
6804	--	-	-	-	-	-	-	X	X	-	-	-	-
6805	--	-	-	-	-	-	-	X	X	-	-	-	-

X indicates anomalous value.


BLACKETTS LAKE K01-21
NTS 11K/01-23
Figure 1
Beechmont North
McLeanville
Frenchvale
Beechmont
COXHEATH HILLS
Blacketts Lake
Gillis Lake
K01-23
Sydney Forks
Portage
Meadows Road
East Bay
East Bay Hills
08
07
05
03
00


Beechmont North
McLeanville
Frenchvale
Beechmont
Blackette Lake
Blackette Lake
Gillis Lake
Sydney Forks
KOI-23
Portage
Meadows Road
East Bay
Geology by: Sandra M. Barr, Alan S. Macdonald, Chris E. White, 198
Department of Geology, Acadia University,
Wolfville, Nova Scotia B0P 1X0
Figure 2
Scale 1:50 000 - Échelle 1/50 000
Kilometres 1 0 1 2 3 4 Kilomètres

Coxheath Hills *(Geology by Thicke, 1997)*

Carboniferous

C — Mainly clastic sedimentary rocks (undivided)

Devonian

D_{Mc} — McKeown Lake Formation (clastic rocks)

Cambrian

C_{Gam} — Mainly clastic sedimentary rocks (includes Bagnall, MacMillan, and Hadlock Formations)

Late Hadrynian (Fourchu Group)

H_{Fch3} — Rhyolitic tuffs and flows; minor mafic to intermediate volcanic rocks and volcaniclastic sedimentary rocks

H_{Fch2} — Andesitic tuffs and flows; minor felsic and mafic flows

H_{Fch1} — Basaltic flows, debris flows, and tuffs; minor felsic and intermediate volcanic rocks

Intrusive Rocks

Coxheath Pluton

$HC_{gd(Cx)}$ — Granodiorite

$HC_{qmd(Cx)}$ — Quartz monzodiorite

$HC_{d(Cx)}$ — Dioritic rocks

$HC_{g(Cx)}$ — Gabbro

Spruce Brook Pluton

$HC_{mg(SB)}$ — Monzogranite

$HC_{gd(SB)}$ — Granodiorite

$HC_{d(SB)}$ — Dioritic rocks

Stirling Belt

Carboniferous

C — Sedimentary rocks (undivided)

Devono-Carboniferous

DC — Sedimentary rocks (undivided)

Early Cambrian(?)

C_{Sr} — Red and grey quartzite, mafic, pebble conglomerate, siltstone, and slate

Late Hadrynian (Fourchu Group)

(stratigraphic sequence uncertain)

H_{Fch8} — Quartz-carbonate layers and lenses

H_{Fch7} — Andesite to basaltic lithic tuff; basaltic flows
A Basaltic lithic tuff B basaltic flows

H_{Fch6} — Andesitic lithic tuff and tuff

H_{Fch5} — Mafic, siltstone, conglomerate (eg)

H_{Fch4} — Basaltic flows, breccias, and lithic tuffs

H_{Fch3} — Rhyodacitic crystal tuff

H_{Fch2} — A Rhyolitic quartz-feldspar crystal-lithic tuff
B Rhyolitic to dacitic quartz-feldspar crystal-lithic tuff

H_{Fch1} — Quartz-feldspar porphyritic rhyolite/rhyodacite

EAST BAY HILLS

Carboniferous

C — Clastic sedimentary rocks (mainly)

Early Cambrian

$C_{Hm(g)}$ — Harrison River Formation (conglomerate, siltstone)

Late Hadrynian (Fourchu Group)

(stratigraphic sequence uncertain)

H_{Fch8} — Rhyolitic crystal tuffs and flows; rhyolitic lithic tuffs and epiclastic rocks

H_{Fch7} — Amygdaloidal and/or porphyritic basalt flows; mafic tuff; lithic tuff; epiclastic rocks

H_{Fch6} — Andesitic and rhyolitic tuff; rhyolitic flow and/or tuff breccia

H_{Fch5} — Rhyolitic tuffs and flows

H_{Fch4} — Andesite to rhyolitic crystal tuff and lithic-crystal tuff

H_{Fch3} — A Andesitic crystal and lithic-crystal tuffs
B Rhyolitic tuff
C Laminated tuffaceous
D Basaltic flows and tuffs

H_{Fch2} — A Amygdaloidal and/or porphyritic basaltic basaltic to andesitic tuff and lithic tuff; domed lithic and crystal tuff
B Basaltic lithic tuff and crystal tuff; minor conglomeratic and porphyritic basalt
C Basaltic to andesitic flows and tuffs; minor dacitic vitric and crystal tuff

H_{Fch1} — Basaltic to rhyolitic crystal and lithic-crystal tuff; minor basaltic to andesitic tuff

Stirling Belt

Intrusive Rocks

Grand River pluton

$H_{Gr(g)}$ — Leucogranite

Chisholm Brook Suite

$HC_{gr(CB)}$ — Granodiorite

$HC_{qmd(CB)}$ — Quartz monzodiorite

$HC_{d(CB)}$ — Diorite

Minor intrusive Rocks

$HC_{m(g)}$ — Mafic Porphyry

$H_{(g)}$ — Gabbro

East Bay Hills

Intrusive Rocks

MacEachern Lake pluton

$H_{Mg(mE)}$ — Monzogranite, minor granodiorite

$H_{Gd(mE)}$ — Granodiorite, minor monzogranite

$H_{qmd(mE)}$ — Quartz diorite, minor diorite and quartz monzodiorite

Huntington Mountain pluton

$HO_{Sg(mH)}$ — Syenogranite

$H_{Lg(mH)}$ — Leucogranite

$H_{Mg(mH)}$ — Monzogranite

$H_{Gd(mH)}$ — Granodiorite

$H_{d(mH)}$ — Diorite rocks

Irish Cove Suite

$H_{Mg(IC)}$ — Monzogranite

Minor Intrusive Rocks

$HO_{Mz(IC)}$ — Monzodiorite

$HO_{gr(IC)}$ — Granite porphyry

$HC_{gb(IC)}$ — Gabbro monzodiorite

Coastal Belt

Late Hadrynian (Fourchu Group)

(stratigraphic sequence uncertain)

H_{Fch7} — Basaltic flows and lithic tuffs

H_{Fch6} — Rhyodacitic lithic-crystal tuff

H_{Fch5} — Mafic, siltstone, quartzite

H_{Fch4} — Basaltic crystal tuff, dacite, and siltstone

H_{Fch3} — Andesitic crystal-lithic and crystal tuff

H_{Fch2} — Rhyodacitic crystal tuff and rhyolitic minor conglomerate siltstone

H_{Fch1} — Basaltic crystal tuff; minor andesitic lithic-crystal tuff, dacite, and rhyolite

Intrusive Rocks

Lower St. Esprit pluton

$CO_{hg,M}$ — Hornblende biotite granite

Captain Cove pluton

$HC_{lg(CC)}$ — Leucogranite

Minor Intrusive Rocks

HC_{lg} — Leucogranite (Penet Richaud)

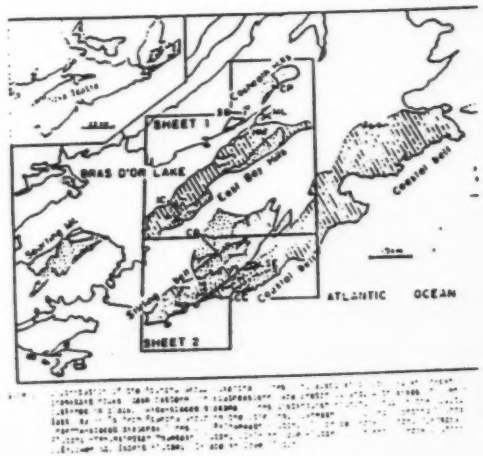
HO_{gd} — Granodiorite

HO_{d} — Diorite

$HC_{m(g)}$ — Mafic porphyry

Legend

- Rock outcrop, area of outcrop
- Geological boundary (defined, approximate, assumed)
- Bedding (inclined, vertical, overturned) + tops
- Bedding (inclined, vertical) - tops unknown
- Flow or intrusive rocks (inclined, vertical)
- Foliation (inclined, vertical)
- Lineation
- Axis of minor fold
- Fault (defined, approximate, assumed)
- Mineral prospect (abandoned)
- Mineral occurrence — Copper: Cu; Molybdenum: Mo; Zinc: Zn; Pyrite: Py
- Drill hole



Geology by: Sandra M. Barr, Alan S. Macdonald, Chris E. White, 1998
Department of Geology, Acadia University,
Wolfville, Nova Scotia B0P 1X0

T/4

TABLE 3
BLACKETTS LAKE ANALYSES

BLACKETTS LAKE ATOMIC ABSORPTION

BLACKETTS LAKE ASSAYS

GOLD BROOK

OCCURRENCE: GOLD BROOK K02-08 (Gold, copper, molybdenum) (WAGAMATCOOK, MIDDLE RIVER)

LOCATION: 5123360 N 662260 E NTS 11K/02C

ACCESS:

Mineral occurrences are reported along First, Second, Third and Fourth Gold Brooks. The largest of the four is in Second Gold Brook, the one discussed here.

Drive north on Cabot Trail from Buckwheat Corner through Lower Middle River, Middle River and Upper Middle River to MacDonald Brook where a road branches north (right) off Cabot Trail to Gold Brook. From the turn-off at MacDonald Brook, drive 2.4 km through Gold Brook to First Gold Brook, (old MacLeod farm owned by Janet (MacLeod) and Peter Garabedian. A mine access road 2.7 km long leads from First Gold Brook up Middle River and Second Gold Brook to dump parking area about 200 m below the mine-site. There is a large dump below the mine site, with new buildings and restored adits.

REFERENCES:

NSDME AR 11K/02C 21-Q-12 (06) Gold. Victoria County, Middle River.

Barr, S. M., Raeside, R. P. and Jamieson, R. A., 1987. Geology of the Igneous and Metamorphic Rocks of Northern Cape Breton Island, Nova Scotia. GSC Open File 1594, six sheets, scale 1:50 000.

PREVIOUS WORK:

The existing MOD historic summary is attached. Free gold was recovered and nickeliferous pyrrhotite was reported.

GEOLOGY:

Refer to Barr et al. (1987) who place the occurrence in Hadrynian, Sarach Brook metamorphic suite, undivided. Figure 3 is a portion of their geologic map.

RESULTS OF 1988 FIELD CHECK:

The Gold Brook property was visited for reason of interest. Five samples were collected, three from dumps and two from bags of milled rock at roadside above the lower adit (Table 1). This is not and was not intended to be representative sampling of the deposit but merely gives an indication of some of the metals present and their variation in tenor.

TABLE 1

SECOND GOLD BROOK SAMPLES

88-GB-7101	Quartz vein fragments, sulphide mineralization. From (lower) main dump.
88-GB-7102	Quartz vein fragments, sulphide mineralization. From dump with rockwork wall at site of collapsed workings.
88-GB-7103	Quartz vein fragments, sulphide mineralization. From dump with rockwork wall at site of collapsed workings.
88-GB-7104	Milled rock (from bags at roadside above lower adit).

88-GB-7105 Milled rock (from bags at roadside above lower adit).

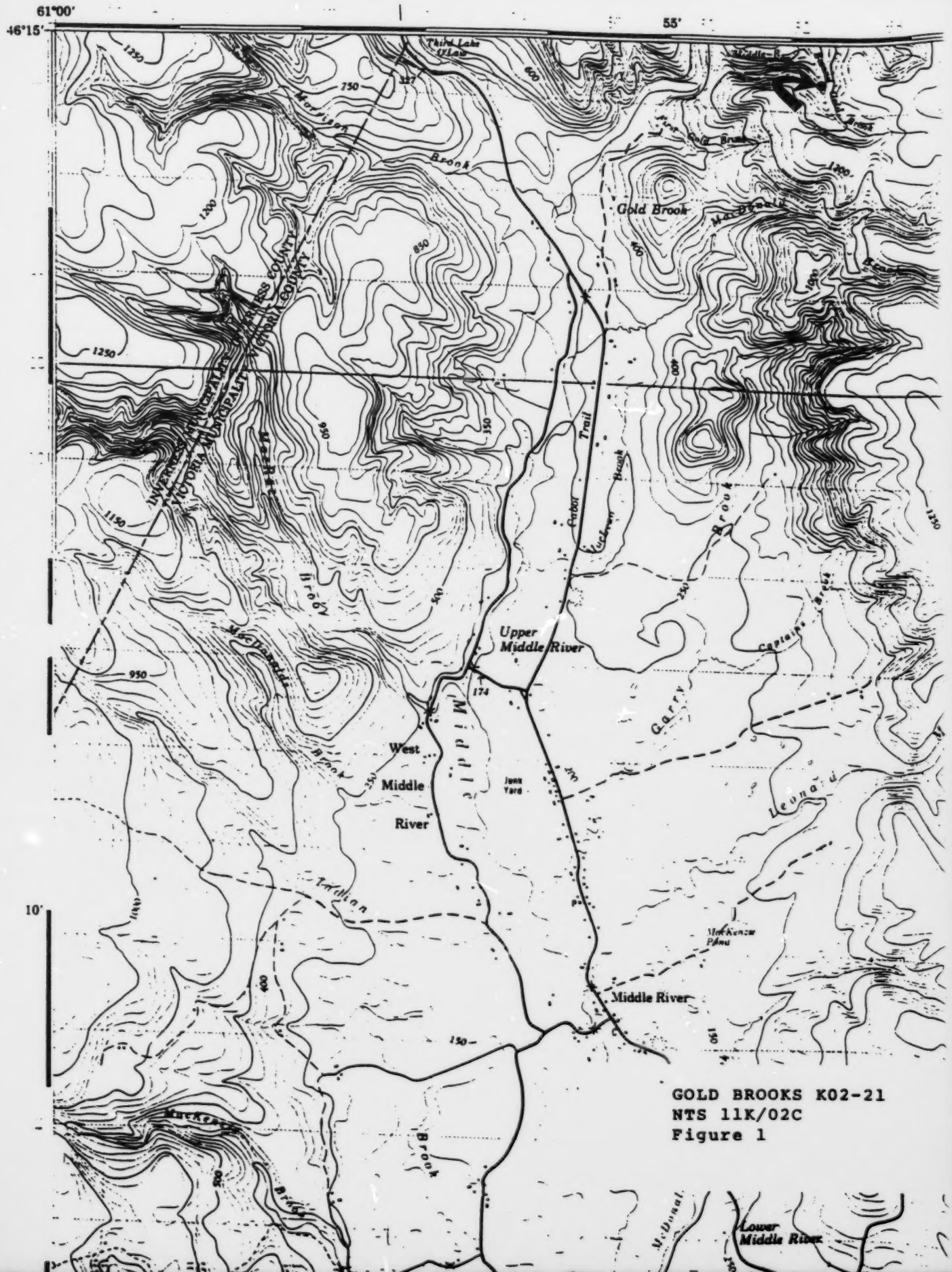
The observed mineralization in quartz veining on dumps includes pyrite, chalcopyrite and molybdenite. Analyses listed in Table 2 indicate significant values of Fe, As, Mo, Au, Cu, and Pb but do not contain Ni values reported in earlier assays (Table 3). This is a result of spatial variation in metal content within single, and among different, vein systems.

TABLE 3

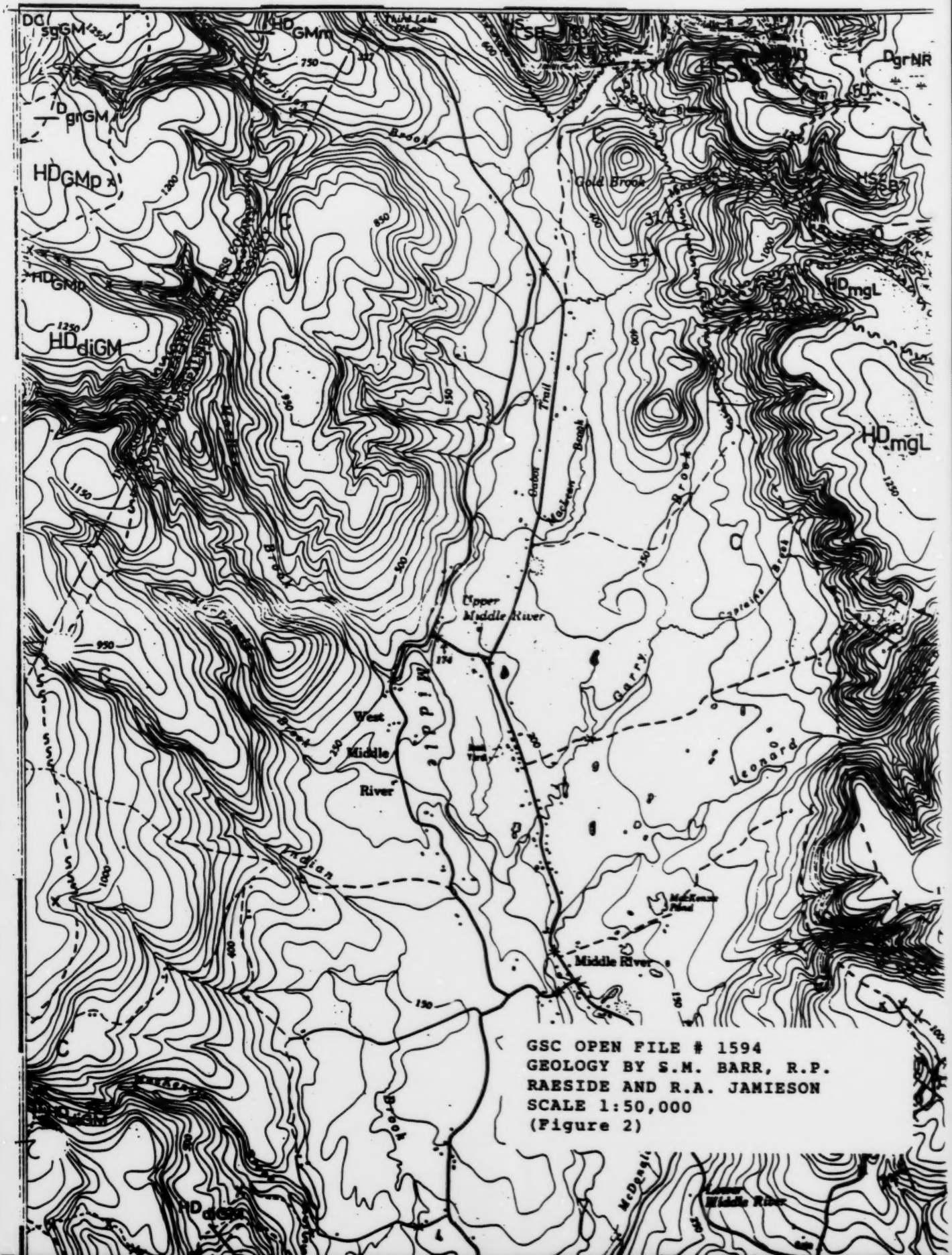
GOLD BROOK ANOMALOUS VALUES

Sample	Fe%	As	Mo	W	Au ppb	Cu	Pb	Ni
7101	2	140	--	--	65 (73)	106	122	34
7102	2.3	--	128	--	479 (410)	350	--	33
7103	1.1	--	382	--	314 (273)	383	--	<20
7104	3	326	--	17	170	233	--	48
7105	2.2	201	--	--	--	171	--	<20

The Gold Brook occurrences deserve thorough literature and field research to provide complete documentation before adits become inaccessible and valuable information is lost.



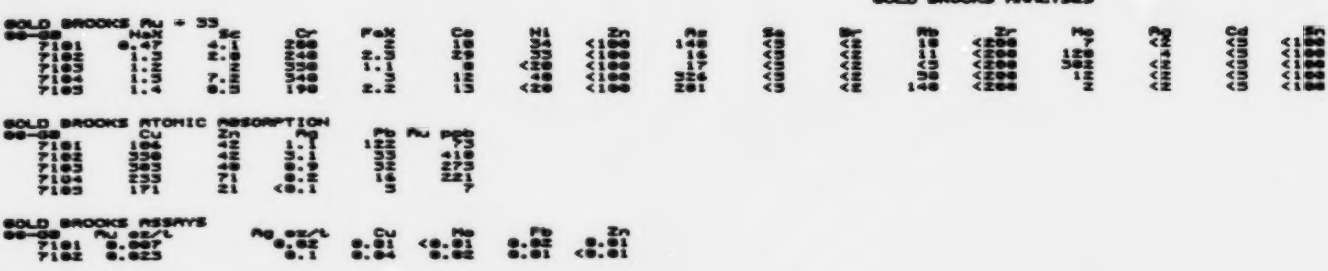
GOLD BROOKS K02-21
NTS 11K/02C
Figure 1



GSC OPEN FILE # 1594
GEOLOGY BY S.M. BARR, R.P. RAESIDE AND R.A. JAMIESON
SCALE 1:50,000
(Figure 2)

T12

TABLE 2
GOLD BROOKS ANALYSES



[redacted]

feet further up the brook in the same belt ore was again found, and in many small pits in the neighbourhood. During the last two years mining operations on a much larger scale have been carried on. Two shafts, 1,000 feet apart, have been sunk to a depth of 150 and 140 feet, and in the autumn of 1882 were furnished with hoisting engine, steam pump and power drills and a Blake crusher. A blacksmith's forge, store, laboratory, engine houses and other buildings have also been erected. In the main shaft, at a depth of 120 feet from the surface, a crosscut was driven and cut the ore three feet from the shaft, but was continued about 80 feet in the hope of cutting a parallel lode. The ore was drifted on and a little stoped out. Twenty feet lower, drifts were pushed east and west, nearly 80 feet in each direction, showing, it is said, a large quantity of paying ore. In the east drift a winze was sunk 30 feet. In addition to copper the Coxheath lode also carries silver. Two assays, by C. T. Lee, of samples of the ore yielded:—

I.

Silver,	35	oz. per ton: Value	$ 38.50
Gold,		" " "	4.13
Copper,	20	per cent. per ton: Value	60.00
Total value			$102 63

Lead—a trace. Arsenic—none.

II.

Silver,	73	oz. per ton: Value	$ 80.30
Copper,	21	per cent. per ton: Value	63.00
Total value			$143.30

Prof. R. H. Richards, of the Massachusetts Institute of Technology, assayed a sample of chalcopyrite, galena and quartz, which yielded:

Silver,	66	oz. to the ton: Value	$ 81.60
Copper,	18¼	per cent. to the ton: Value	45.30
Total value			$126.90

The explosive used is principally dynamite, of which two and a-half tons were laid in last fall for the winter's use. The blasts at both shafts are exploded by electric batteries. Mr. H. C. Burchell, C. E., is the manager of the mine, while the company's consulting engineer is Mr. T. W. Revere.* It is to be hoped that the energy and capital thrown into this enterprise will not be wasted.

Gold has been supposed to occur in various parts of the Great Bras d'Or and Little Narrows; and fruitless search has been made for it. At Charles McLellan's (tanner), Broad Cove Chapel, a pit was sunk 25 feet in the hope of finding gold associated with the iron pyrites in a

* Cape Breton *Advocate*, March 22nd, 1883

bluish-grey argillaceous shale. About 20 years ago the existence of gold in the sand of many of the rivers was noticed by Mr. Campbell, who mentions particularly the Middle, Long Point, Northeast Margaree, Baddeck, Fisset, Choticamp and Cape Rouge Rivers. But in only the first of these has gold been found in sufficient quantity for working, although Mr. Campbell found the sand of the Northeast Margaree nearly as auriferous.

Mr. Campbell's explorations.

Middle River has been proclaimed a gold district by the Government, but is unlike the other districts of the mainland in the mode of occurrence of the gold in the veins and surrounding rocks. A farmer named Morrison, living in the neighborhood, was the first to call the attention of the Government to the gold found in the district, for which he received a free grant of an area on one of the brooks, and became one of the most successful in washing out gold.

Middle River.

The first attempt, on an extensive scale, to test the gold in this river was made by an American company in 1867. They commenced operations near McLennan's bridge, on the Margaree road, by constructing sluices and other apparatus, with which they washed during the entire summer, and obtained, as I am informed by Mr. Alexander Wright, of Moncton, a considerable quantity of gold and several barrels of black (magnetic) sand.* However, as the expenditure exceeded the receipts, they did not continue their search, although it was shown that at this point, as well as for some miles upstream, every panful of gravel yields particles of gold.

In 1870 Mr. Wright and others tested by cradles, sluices and pans, in the same way, all the brooks above McLennan's bridge, finding gold in all those on the left bank. They also sunk a shaft in the main river with the view of reaching the bed rock, but an influx of water stopped the work. The largest piece of gold found is said to have been worth $12 or $15, but generally the nuggets ranged in value from fifty cents to $2. In several cases the gold was found adhering to quartz, although it was not found in any of the quartz leads of the neighborhood. Notwithstanding all the favorable indications no results proportionate to the outlay seem to have been obtained since the region was proclaimed a gold district, although numerous companies and individuals have at various times, sought for gold in this region. It may be that the proper appliances and an intelligent determination to test thoroughly the value of the district were wanting.

Size of nuggets found.

Silver.—Mr. Campbell states that native silver in nuggets, in the surface drift and in strings and nests in sparry veins, occurs in Mackenzie River.

Mackenzie River.

* Titaniferous iron sand according to Prof. How, who also mentions nuggets of bismuth up to the size of a pigeon's egg among the washings.

PRODUCT	PROVINCE OR TERRITORY	N.T.S. AREA	REF.
GOLD	Nova Scotia	11 E/2	AU 1

NAME OF PROPERTY MIDDLE RIVER (GOLD BROOK, WAGAMATKOOK)

OBJECT LOCATED - mine site.

UNCERTAINTY - 200 metres. Lat. 46°14'48" Long. 60°54'46"

Mining Division — District

County Victoria — Township or Parish

Lot — Concession or Range

Sec. — Tp. — R.

OWNER OR OPERATOR AND ADDRESS

(1963) Mareast Explorations Limited

DESCRIPTION OF DEPOSIT: The rocks underlying the property consist of a highly metamorphosed series of interbedded sediments which has been intruded to the east and northeast by large granite masses. The western edge of the eastern granite mass crosses the eastern fifth of the property. In addition to these intrusions, a gabbroic sill, 150 feet in width, striking N 75° E and dipping 40° N extends for over 3,000 feet between Second Cold Brook and Third Cold Brook. In the vicinity of the mine workings a 35-foot dyke or sill of quartz porphyry which can be traced for over 1,000 feet cuts thin-bedded calcareous schists. The Lizard is the largest of 5 known veins of similar composition found over a width of 700 feet along Second Cold Brook. They occupy fault or fracture planes cutting the bedding of the calcareous schist at an acute angle. The veins consist of one or more stringers of quartz of varying widths across the thickness of the vein. The quartz carries weak pyrite mineralization and frequently shows coarse visible gold. The Lizard vein is very irregular, varying in width from a fraction of an inch to about 6 feet, and in dip from vertical to nearly horizontal. It has been developed underground for a length of 650 feet and vertically for 200 feet. Old trenches have exposed the vein intermittently for a further 2,000 feet west of Second Cold Brook.

Associated minerals or products of value - Nickel, silver.

HISTORY OF EXPLORATION AND DEVELOPMENT

Mareast Explorations Limited holds 48 claims totalling some 1,920 acres. These claims cover tracts 103 and 104, section 11 E/2 (; the N½ tract 102, section 11 E/2 C; the SE¼ tract 6, section 11 E/7 B; and the S½ tract 7, section 11 E/7 B. Tracts 103 and 104, section 11 E/2 C are held under option from A.G. MacKenzie and Gaye Johnson of Springdale, Nfld., and the remainder are held under a licence or right to prospect.

Gold was first reported from this area in 1863, when it was found in the sands of Middle River. In 1867 an American company constructed sluices near McLennan's bridge and worked during the summer. In 1870 the brooks above McLennan's bridge were tested by means of cradles, sluices and pans. In 1902 some Chinese did some work here and in 1922 the alluvial deposits again received some attention. However none of these operations were continued for long.

The placers and resulting prospecting activity led to the discovery of a series of gold-bearing quartz veins on Second Gold Brook, about ¾ of a mile from its mouth. The veins were difficult of access and beyond a little trenching nothing was done until 1906 when the ground was acquired by the Great Brae d'Or Mining Company. Mining was confined to the Lizard vein which was worked for several years, from 1906 to 1911 and again in 1914 and 1915.

Underground workings, now inaccessible, consist of 3 adit levels and a 2-compartment shaft with 2 levels inclined at 44°. The 2 levels from the shaft, at 50 feet and 75 feet (vertically) below the collar, are small, with 80 feet of drifting on the first and 75 feet on the second. The principal adit level (track level) is about 8 feet below the elevation of the shaft collar and extends along the vein for 200 feet east of the shaft and 400 feet to the west. A total of 1,216 feet of crosscutting and drifting has been done on this level. The portal of the intermediate adit is on the vein 140 feet west and 92 feet (vertical) above the shaft collar. It has followed the vein westerly for 250 feet. The upper adit, 240 feet west and 117 feet above the shaft follows the vein westerly for 230 feet and contains 275 feet of lateral work. The vein for a horizontal length of 350 feet is stoped out from the track level to about 40 feet above the upper adit, a vertical distance of 155 feet.

Masservey (1931), on several samples taken from the track level, obtained values in gold ranging from a trace to $38.00 per ton. At 2 locations he found small masses of pyrrhotite apparently lying below the main quartz vein. Representative samples of the pyrrhotite from the 2 locations showed an average nickel content of about 1.16per cent.

The following analysis of a sample of concentrate from the mill of Great Brae d'Or Mining Company is contained in the 1908 Annual Report of the N.S. Dept. of Mines:

Arsenic	-	26.26%
Gold	-	2.14 oz./ton
Silver	-	2.46 oz./ton
Nickel	-	Trace

see over ...

HISTORY OF PRODUCTION

Production from the Middle River District is as follows (A.R.1936, p. 281, Dept. of Mines, N.S.):

Year	Ore Crushed	Gold Recovered oz.	dwt.	gr.
1907	77	24	14	21
1908	2,800	590	9	19
1909	1,704	445	-	-
1910	314	47	5	-
1911	125	23	4	-
1914	775	262	17	13
1915	269	41	14	19
1916	300 tons of sample ore	5	10	-
Total	- 6,764	1,440	16	

Shipping point

Material shipped

Destination

Distance from mine

Carrier

MAP REFERENCES

Map 11 K/2, Baddeck, (Topo.), Sc. 1:50,000.

Map 14-1956, Baddeck, (Geol.), Sc. 1":1 mile.

Map 1211 A, Baddeck, (Geol.), Sc. 1":1 mile.

Map Geology Crowdis Mountain Area, (Geol.), Sc. 1":½ mile - accomp. N.S. Dept. Mines, Mem. 7, 1970.

REMARKS

REFERENCES

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Malcolm, W.; Gold Fields of Nova Scotia; Mem. 156, Geol. Surv. of Canada, 1929.

Messervey, J.P.; Special Report on Wagamatkook Gold District; Annual Report, Dept. of Mines, Nova Scotia, 1931.

Goranson, E.A.; Mineral Deposits at New Ross, Indian Path, Middle River and Neat Cove, N.S.; Summary Report 1931, Pt. D., Geol. Surv. of Canada.

Messervey, J.P.; A Survey of the Gold Districts of Nova Scotia Not Covered in Part 2 of the Mines Report for 1927; Annual Report on the Mines, 1928, Pt. 2, Dept. of Public Works and Mines, N.S.

Douglas, G.V. and Milner, H.L.; On an Occurrence of Nickeliferous Pyrrhotite in Nova Scotia; Trans. Vol. 60, pp. 258-260, Can. Inst. Min. Met., 1957.

Annual Reports, Dept. of Mines, N.S.; 1906, pp. 66, 67; 1907, pp. 104, 105; 1908, pp. 108, 109; 1909, pp. 168 (facing), 169; 1910, p. 154; 1911, pp. 202, 203; 1912, p. 187; 1914, p. 110; 1915, p. 85; 1916, p. 95; 1936, p. 281.

Mineral Policy Sector; Corporation File: "Maraast Explorations Limited".

Milligan, G.C.; Geology of the George River Series, Nova Scotia Department of Mines, Memoir 7, pp. 91-92, 1970.

Nova Scotia Department of Mines; Mineral Inventory: "Middle River", 1978, "Impala Mines Limited".

HISTORY OF EXPLORATION AND DEVELOPMENT (continued):

In 1955 Cape Breton Metals Limited completed an electromagnetic survey and about 1,500 feet of diamond drilling to assess the base metal possibilities in the area. However it was found impossible to interpret the geophysical results because of rough terrain. In 1969, Impala Mines Limited acquired ground nearby on the Middle River, for the exploration of placer gold. River gravels in some places varied between $0.10 and $2.25 per cubic yard (gold at $40.00/oz).

OCT 1963
SEPT 1979 JL
MAY 1980 JL